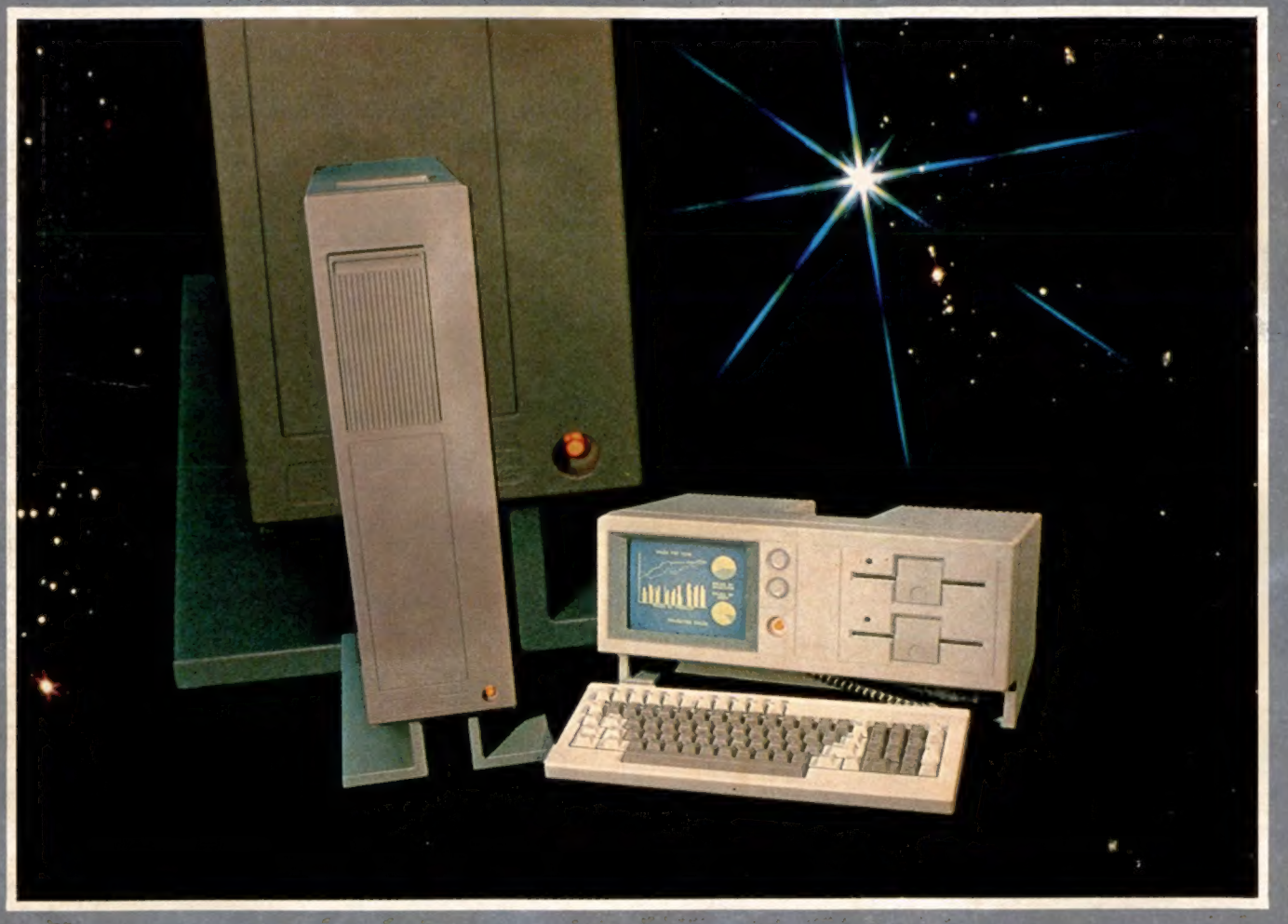
THE MAGAZINE FOR HYPERION USERS

Volume One, Number One

HyperionPC



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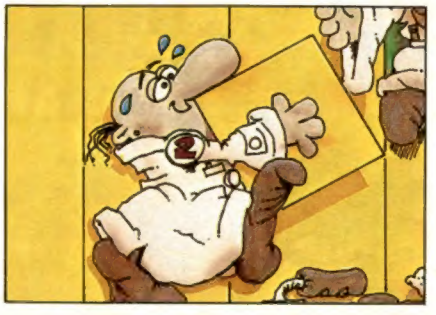

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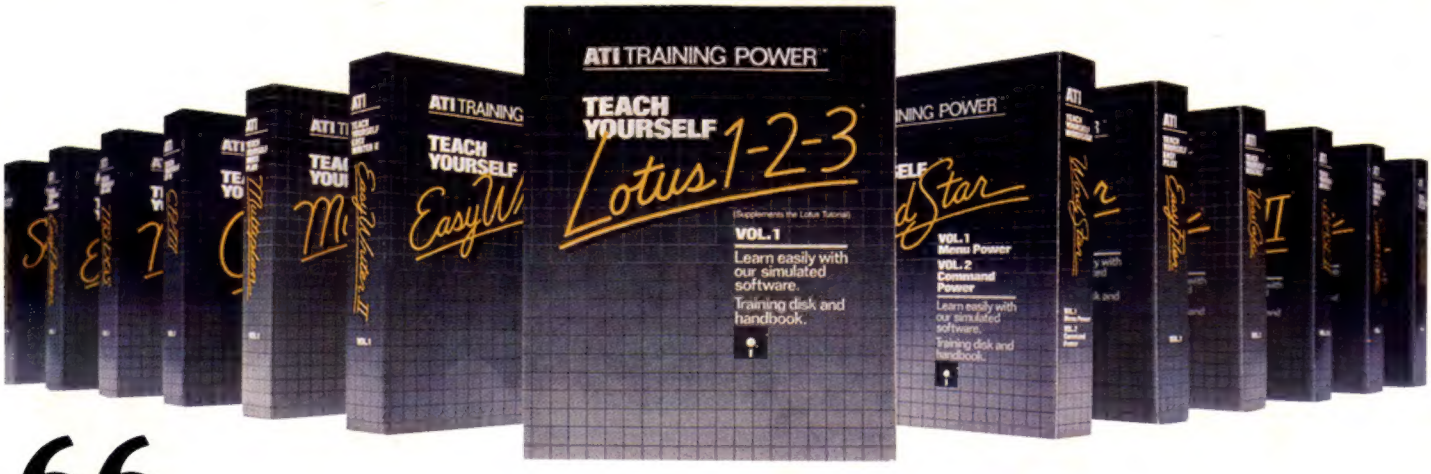

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Keynotes

We just had a baby. A bright, bouncy, 48 pager and we're proud as punch.

Hyperion PC is alive and kicking and is designed to provide a forum for new, experienced or potential users to exchange information and share views on operating techniques, software applications, problem solving capabilities, efficiency measures, and other areas of interest.

Hyperion PC magazine is not a technical journal. The articles you find in it are designed to help those users who are concerned with what the Hyperion can do, rather than how it works. Discussions on hardware and software will be clear and concise, stressing benefits, results and applications rather than technical complexities.

Each issue will profile business people and their organizations who have integrated the Hyperion into their work environment. Our Hands-On section will offer practical advice on how to get the maximum benefit out of standard Hyperion software: IN:TOUCH, IN:SCRIBE, ALADIN, LOTUS 1-2-3, MULTIPLAN and DOS.

Hyperion PC and Percom Publishing are working closely with the senior management and technical staff of Bytec-Comterm, the manufacturers of the Hyperion, and would like to express our appreciation for the support of Laurent Nadeau, Michael Cowpland, Stewart Bacon, and Marie-Lynn Marchessault in the launching of this new magazine.

Our goal is to produce a magazine that provides relevant information, on a timely basis, for Hyperion users. We encourage our readers to write us with ideas, problems, or experiences that you have encountered while using the Hyperion. Your participation is an important element in the continued development and effectiveness of this magazine.

In this technological era, increased efficiency and productivity are keys to success. We are confident that the Hyperion personal computer and Hyperion PC magazine will give you that added edge.

Welcome to the world of Hyperion PC! We hope you enjoy our baby!

Paul C. Davis
President

Coming Up

In Issue No. 2 of Hyperion PC, we will be presenting another series of articles designed to help you, the reader, discover how to accomplish more with your Hyperion. Here's what's upcoming:

The issue leads off with a corporate profile of Bytec-Comterm Inc., the manufacturers of the Hyperion. It promises to be an interesting account of the struggles involved in getting one of the finest PC-compatibles around onto the market.

As well, we'll introduce the first in a series of applications articles on how to use ALADIN, the relational database system for the Hyperion. We'll also feature Part Two of our series on understanding and using LOTUS 1-2-3 graphics.

And finally, there will be another IN:TOUCH tutorial that points out several particularly useful features of this applications-oriented software.

We'll also feature an update of our Software Review and our usual columns: Help, Edit and Explain. Don't forget to send in your comments and questions - we look forward to receiving them. See you next issue!

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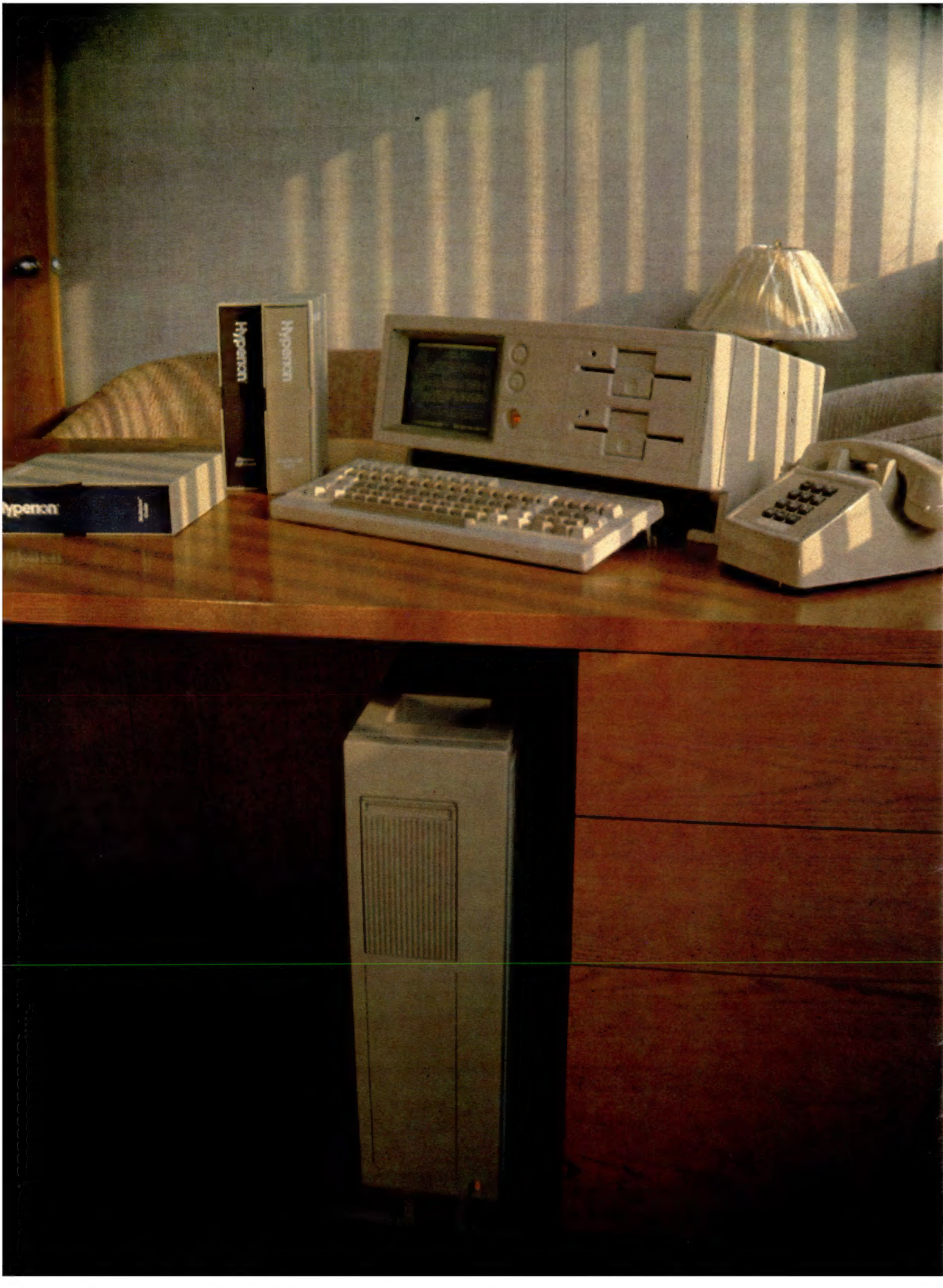
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EX Marks the Spot

Bytec, the manufacturer of the Hyperion, unveiled its long-awaited EXpansion chassis at the Comdex show in Atlanta in May, 1983. Called the HYPERION EX, this sleek-looking device provides 7 IBM expansion slots and a 10 megabyte hard disk to increase the versatility of the Hyperion. Recently, I had the opportunity to use the EX for a few days. The only problem experienced was in filling it with data.

The EX will fit unobtrusively into any office since the 24-inch high, 6-inch wide, and 20-inch long (65x15x60 cm) box does not look at all like computer equipment. It can very conveniently be tucked away beside or under a desk. (Photo 1.) Although the EX is more than twice the weight of the Hyperion, the recessed handle on the top and the rubber rollers on the base make it easy to wheel around the office. Taking the Hyperion home for the weekend or on the road for a business trip is a simple matter of disconnecting the single cable attached to the expansion connecter. (See Photo 2.) In fact, an ideal application would be to use the Hyperion to collect data on the road trip and update the database on the EX's hard disk upon return to the office.

The EX has its own built-in 110 watt power supply. Like the Hyperion, this can be set for 220 volts for North America or Europe. This adjustment can be made quickly by a qualified service person.

The interface board of the EX fits in its own slot and does not use one of the 7 IBM slots. Switches on this board, once set for the disk drive(s) or the extra memory, may be ignored. In future, the EX may even be used with an IBM PC or XT by placing another interface board in the IBM system unit and connecting the two.

Photo 1: The EX at home in the office.

All Aboard

The 7 IBM compatible slots open up a whole new range of applications for the Hyperion. As can be seen from Photo 3, the seventh IBM compatible expansion slot is used for the board controlling the hard disk. There are over 200 different boards available for the IBM PC. It must be noted, however, that some of these boards include a clock, first serial or first parallel port, since the IBM PC does not have these built-in as does the Hyperion.

Memory boards will certainly be of interest to owners or potential owners of the EX. The Hyperion has an internal memory of 256K bytes. A total of 640K could be addressed with more memory in the EX. This would be enough memory so that Drive C could be expanded to its full size (the equivalent of a floppy disk) and still leave plenty of room for main memory.

Other types of boards for the EX that will prove useful are those that provide further parallel and serial ports. These would be essential to run a multi-user system or to support numerous simultaneous peripherals. One type of board provides special memory reserved for use as a print buffer. With a print buffer, the Hyperion sends all of the file to the special memory and does not have to wait for the printer to finish before going on to another task.

Fast computer communications is another door open to the EX. Much has been written in the last few years on the office-of-the-future, where local area networks link computers and other equipment. There are IBM-type boards now available to connect Xerox's Ethernet and other such networks. High speed direct-connect modems are also available as plug-in boards.

Many Hyperion owners have expressed interest in color graphics since this feature is not available with the basic Hyperion. Many companies have improved on the original IBM colorboard and on-board processing to speed up graphics manipulation. Certainly software packages such as Lotus 1-2-3 would be more attractive in color.

More exotic applications require more exotic hardware. With a voice synthesis board, your Hyperion could politely (or otherwise) ask you for your next input. With a voice recognition board, you could tell the Hyperion who was the boss and it would understand. There are quadlink boards available for data conversion, process control and even an IBM-type board containing the equivalent of an Apple computer.

It should be recognized that there is more to making a Hyperion/EX combination do all of these wonderful things than just buying a board and plugging it in. One must first be certain that the board is hardware compatible with the Hyperion. To this end, Bytec is testing boards for compatibility just as it has tested software. In future issues we will list all of the boards that Bytec and board manufacturers have tested and found to be compatible with the Hyperion. In addition to simple compatibility, potential buyers should ensure that the software is relevant to their needs. The time spent in pre-purchase investigation and trial will never be wasted.

Hard Facts

The EX that was tested had the optional Winchester hard disk installed. (See Photo 4.) The hard disk is quite small and very plain-looking. The real beauty of the hard disk is on the inside - it has the capacity to hold 10,575,872 bytes, the equivalent of over 30 floppy disks of data and programs. Imagine never having to change a disk in the middle of a

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program again! All the software can be on-line and quickly accessible. Of course this also means that the consequences of a hard disk failure can be dramatic and potentially disastrous. At present, floppy disks are the only means of backing up the data on the hard disk. In the future, Bytec will be marketing a "streaming tape" back-up system for the EX. This device will be accessible through the sliding panel on the front of the EX. (See Photo 5.)

DOS It Work?

The version of Hyperion DOS that we tested was a Beta test version of DOS 1.1 modified to run the hard disk using the INSTALL program. This program changes IO.SYS, one of the

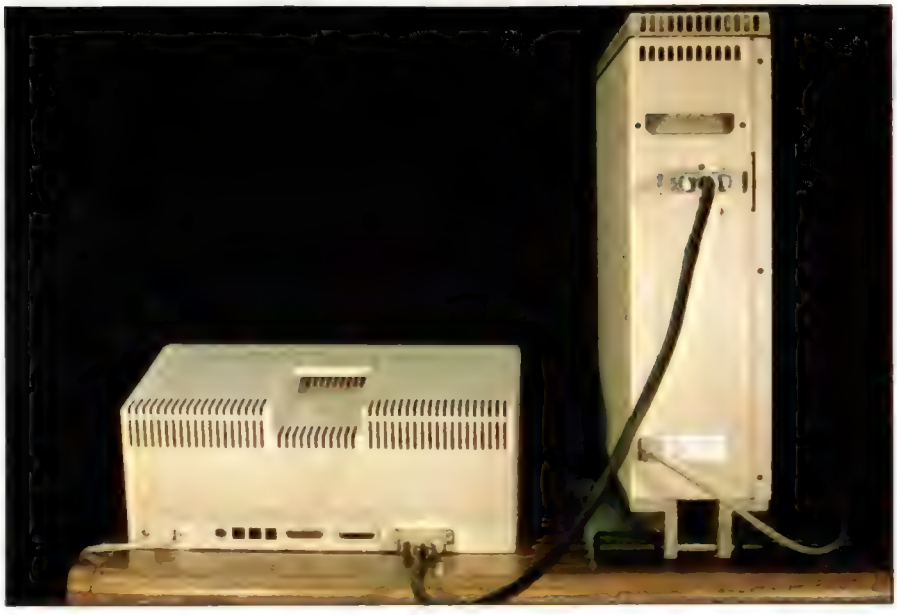

Photo 2: Single cable connecting the EX to the Hyperion.

Figure 1: The organization of a variety of application software and associated data files into a tree structure

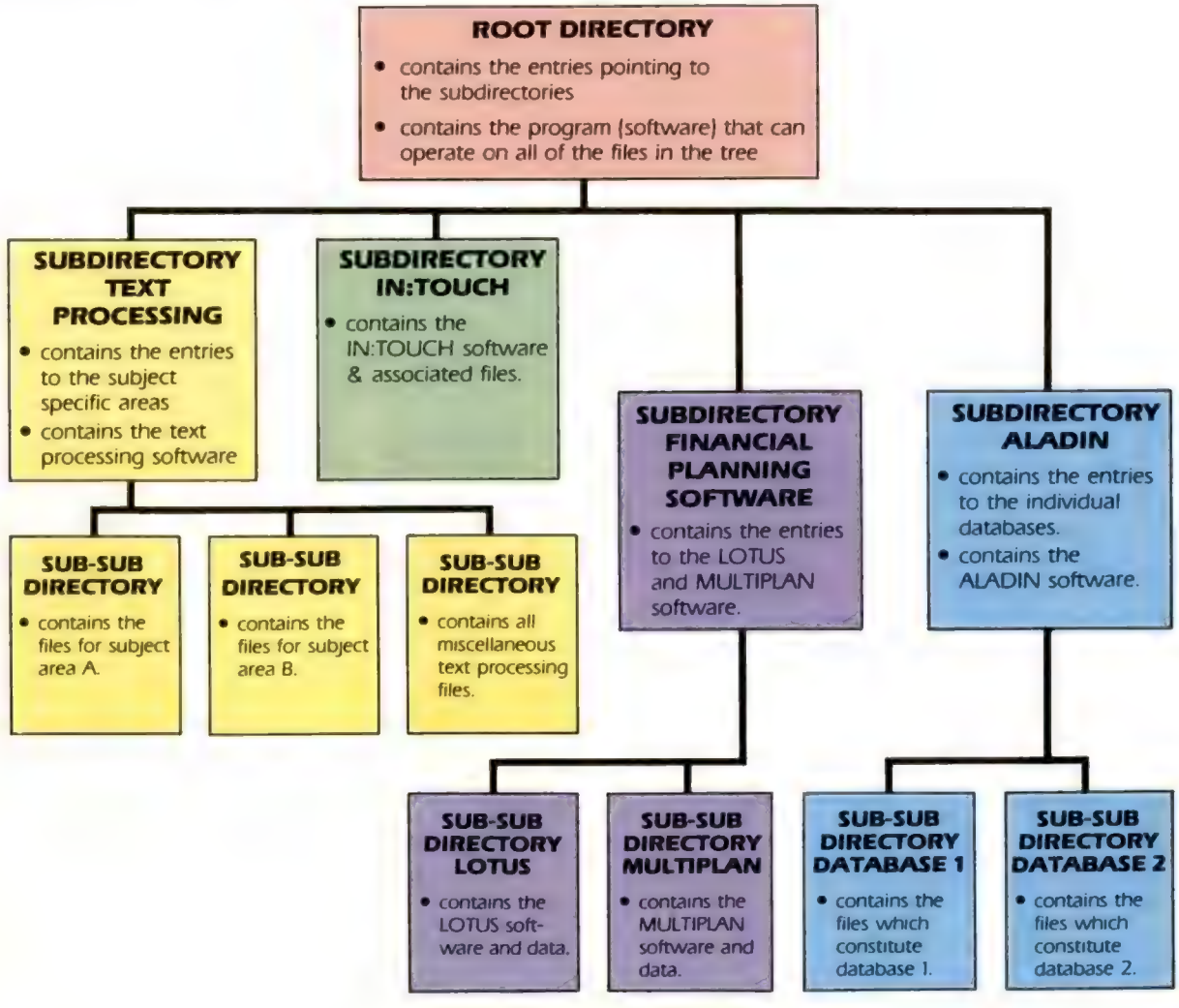

Photo 3: Sideview showing the IBM *compatible expansion slots.*

hidden system files on each bootable diskette, so that it recognizes the hard disk as Drive C. The hard disk cannot really be used effectively in this manner however. With 10 megabytes of storage, think how long it would take to review the directory for the file you know is there but whose name you have forgotten. This version of DOS will not be released for the EX.

As a result, Bytec is adapting Microsoft's DOS 2.11 for the Hyperion. With full soft key support and the type of improvements that typifies the present version of Hyperion DOS, this new version should really be something.

Briefly, DOS 2.11 will do everything the present version of DOS does and much more. A few of the new features include sorting lists (like a list of directory entries), printing while running other programs, and sending the output of one task to be the input of another (like sending the output of a Directory command to a file).

The largest single difference between the present DOS and version 2.11 is the file structure. Rather than having all files in one big directory as the current DOS does, DOS 2.11 allows you to organize sub-directories, sub-sub-directories and so on, like the branches of a tree. Incidentally the term used in DOS 2.11 for this feature is a "tree structure". (See Figure 1 for one possible "tree structured" directory.) Depending on where one "is" in the "tree", you can include or exclude files in directory searches, since you have control over whether you want to go up the tree or down.

EX and Copy Protect

One question that came to mind with the EX was how does it handle copy-protected diskettes, such as ALADIN and LOTUS 1-2-3. (For a full description of what exactly is copy protection see the HELP column in this issue: Editor.) The answer is - very easily. When you copy a copy-protected diskette to hard disk the software is actually copied over. When you go to run your copyprotected software from the hard disk, all you are required to do is put the original copy-protected diskette into Drive A for a few seconds. The software has been built so that when it is running from a hard disk it verifies that you have a copy-protected diskette mounted and then returns to the hard disk for the rest of the session.

EXpected

When I wrote this article, the only hold-up to the release of the EX on the marketplace was the required approval of the FCC and other regulatory bodies. By the time you read this, Bytec fully expects to have the EX in full production.

The initial EXes (list price - $2,995 U.S.) will be supplied with the 10 megabyte hard disk already installed. Bytec feels that most EX's will be sold with the Hard Disk and used with two or three other add-on boards, such as a Local Area Network, additional memory or a color board.

Photo 4: Winchester Hard Disk outside the EX.

Photo 5: Sliding Panel on the front of the EX.

A natural question of many Hyperion owners is "do I need an EX?" While each owner's situation will be slightly different, there are certain general facts to consider in making a decision. The first is the amount of storage capacity you require for the software applications you are running on the Hyperion. Specifically:

- Are you presently running a single piece of software which requires a lot of diskettes - in the order of 10 to 20 - to hold all the data?
- Are you running a lot of application software and find yourself constantly changing both program and data diskettes?

If the answer to one or both of these questions is Yes, then the EX could be a cost-effective purchase.

The second aspect to consider is those processes which you have not computerized because the amount of data is very large and you know that a floppy disk answer would not be cost-effective. A couple of specific examples are inventory control systems and some payroll/personnel systems.

The final aspect to consider is added capabilities that are not supported directly by the basic Hyperion. For instance a color monitor, and a print buffer. With the EX, these added capabilities can be added to the Hyperion.

In conclusion, the EX with the hard disk is the answer for those Hyperion owners who need large, fast storage capacity. It is also the answer for those Hyperion owners who want to add additional capabilities. ✪

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Accountants Go Micro

How one Accounting Firm is Putting the Hyperion to Work

The public accounting profession has discovered the microcomputer, and it seems that the accountant's job will never be the same again.

Today, accounting firms everywhere are incorporating the microcomputer into virtually every aspect of their operations. They're putting micros to work in a wide variety of applications - from working paper and tax return preparation to financial forecasting and budgeting. They're using the machines to enhance the services they provide to their clients. They're finding that the microcomputer capability offers them an opportunity to gain an edge in a world where competition for professional service dollars has become increasingly fierce.

It wasn't always so. Only ten years ago, the typical public accountant regarded the computer as a menacing black box that clients used to facilitate their accounting procedures - and complicate the audit process. Gradually, the profession began to come to terms with mainframe computers, learning to audit them without too much fear and trembling. However, even after the introduction of the microcomputer, and its penetration of the business market, accountants still viewed the machines as something their clients used, rather than as professional tools in their own right.

All that has changed almost overnight. Within the past two years, accounting firms have begun to explore the ways in which microcomputers can be applied in their professional activities. They're discovering that, far from being a menacing box, the micro is actually an extremely powerful tool for improving the efficiency and effectiveness of their services. And some firms, recognizing the tremendous benefits that the machines can bring, have elected to "go micro" in a big way.

A case in point is Thorne Riddell, the largest public accounting firm in Canada. Michael Meagher, a partner in the firm's Ottawa, Ontario office, explains how the microcomputer era is shaping up at Thorne Riddell. "At this point we have over 325 micros throughout the firm, and the numbers are growing all the time," says Meagher. "In effect, we've turned our people loose on the machines to find out how they can be used best. We're getting some great ideas - and we're putting those ideas to work in serving our clients more effectively."

The Right Technology

What started Thorne Riddell down the micro road? To a large extent, says Meagher, it was a question of the right technology at the right time. "Up until about two years ago," he notes, "there were virtually no products on the market that could really do the job for us. We felt that the available hardware and software simply had too many limitations for us to commit to it in a big way."

Michael Meagher: "We use the Hyperion to serve our clients more effectively."

Two developments occurred to change this situation. First, the introduction of the IBM PC. "The PC gave us hitherto-unheard-of capacity and simplicity," says Meagher. "Not only did it have the power and speed to do the job we required, but it had capacity left over which could be employed to make it user-friendly. And of course the initials "IBM" were like a seal of approval and provided a common standard in the market for us and our clients."

Even more significant for Thorne Riddell was the development of the portable computer. "When portables came out, the world opened up," says Meagher. "We could take our micros directly to the client, where we do most of our work. The portable put the power of the micro out in the field, where we needed it most."

Thorne Riddell has adopted the Hyperion as its principal in-house portable microcomputer. According to Meagher, the machine's portability has been a big plus for the firm, and it offers other unique advantages as well. "The Hyperion allows us access to a base of proven software, and of course new IBM-compatible packages are being developed all the time, allowing us to stay current as the applications grow. We have to be at the leading edge, and the Hyperion is helping us to stay there."

Portable Learning

The accountant's work environment is a very busy one and, as Michael Meagher notes, people at Thorne Riddell and other firms often

find it difficult to devote working hours to developing their computer skills. This problem is solved at Thorne Riddell by allowing staff to take the Hyperions home and become computer literate on their own time. This has the side benefit of eliminating the "fear factor" in the learning process - in effect, computer neophytes can make their mistakes in the comfort of their own homes. Meagher recalls taking a Hyperion on vacation with him last year to familiarize himself with the machine's capabilities. "I experimented with it for a few hours each day," he says, "and by the time I got back to the office, I was a lot more comfortable than I had been only two weeks before."

With a portable micro like the Hyperion, any accountant can learn by doing, in much the same way as Meagher. It's a hands-on learning situation - the accountant doesn't have to work through a phalanx of data processing experts to learn to use the computer effectively. Thorne Riddell's Meagher observes that a lot of the professional's fear of computers comes from the mainframe era, when only a specialist could make a computer work. "With the Hyperion," he says, "the most complicated thing you have to do, from a technical viewpoint, is to press the "on" button."

Dozens Of Uses

But what can the microcomputer really do for the accounting profession? What are the uses that accountants are finding for machines like the Hyperion? According to Meagher, there are literally dozens of applications. However, probably the most exciting uses of a microcomputer are those which reduce the tedious part of an accountant's job.

"We accountants don't like to be thought of as bean-counters," says Meagher, "but for better or worse, calculating and re-calculating figures is a big part of what we do. The micro automates this number-crunching for us. It takes away the drudgery and allows more time to obtain information and analyses."

With the mundane, repetitive aspects of the job out of the way, says Meagher, the accountant can bring his or her analytical skills to bear on

Lynn Forrest: "The Hyperion helps us reduce the tedious aspects of audit work."

the client's business. And, because the micro can manipulate data so easily, it becomes a simple matter for accountants to analyze a client's financial information in many different ways. They can, for example, go through a number of different scenarios in a financial projection, just by keying in new data. This kind of power allows accountants to do a far more effective job for their clients.

A walk through Thorne Riddell's Ottawa office demonstrates that the firm's professionals have taken the micro gospel to heart. Hyperions are being used throughout the office, in applications ranging from spread sheet forecasts to word processing. "You don't necessarily have to develop a 'top-down' microcomputer strategy that tells everyone in great detail how these machines should be used," says Meagher. And indeed, a lot of the impetus for micro applications at Thorne Riddell seems to come from the users themselves. "We've found that it only takes one spark plug person to really get a micro program going," says Meagher. "Very often, that person can take the lead and develop microcomputer expertise and applications throughout the organization. Other people are converted and you literally have a multiplier effect."

One of the "spark plugs" in the Thorne Riddell Ottawa office seems to be Lynn Forrest. A 27-year-old supervisor, Forrest edits the office's microcomputer newsletter, which is aimed at disseminating information on microcomputer applications among various user groups. Forrest's objective for the Ottawa office is, simply, for it to become totally microcomputer literate. An in-house micro training program, which to this date has been completed by over 50 per cent of all staff, is helping to accomplish this goal, and the same thing is happening in virtually every other Thorne Riddell office.

The Microcomputer Audit

According to Forrest, one area where the micro's impact is being felt most strongly is in the use of a powerful working paper package (WPP), which is being applied to a growing number of audits this year. A menu-driven product with a high degree of 'auditor friendliness", the WPP was developed within the firm and tailored to the specific requirements of Thorne Riddell and its clients.

The WPP is at its best in situations involving 200 or fewer general ledger accounts, especially where the accounting must perform a lot of adjustments at year end. Once the client's accounts are keyed in to the microcomputer, the WPP will produce a trial balance, working papers (including lead sheets and supporting schedules) and a set of draft financial statements.

The package is very easy to use - in fact, clients can input their own financial data, thus saving the auditor's time. Lynn Forrest recalls one situation in which a client's secretary was able to set up the company's entire general ledger in under three hours. By pressing a few keys, she was able to produce a trial balance and a net income figure in a matter of minutes. Journal entries were equally easy to key in.

The speed and effectiveness of the WPP can really pay off by freeing the auditor from laborious calculations. Frequently, adjusting and reclassification entries need to be posted to amounts as the work progresses - a time-consuming, mechanical exercise. Likewise, auditors usually discover potential adjustments as they go along, and these must be evaluated at some point in the engagement. With the WPP, an adjustment simply involves a few key strokes, eliminating tedious hours of manual recalculation.

Another big advantage of the WPP shows up in the subsequent year's audit. At that time, all the auditor has to do is press a few keys and the prior year's data are carried forward automatically. Last year's balances become comparative figures, and the auditor can quickly key in this year's balances to derive a new trial

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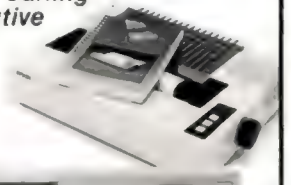

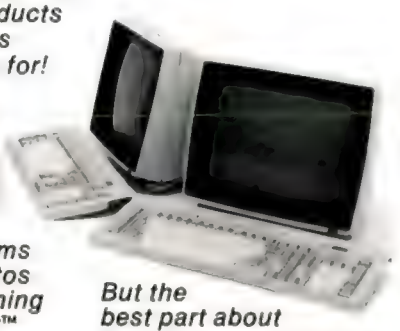

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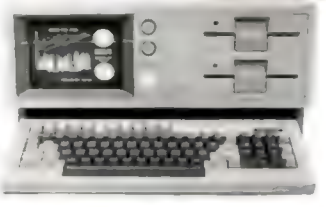

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balance. The frustrating tasks of adding, reading, making changes, and repeating the adds are eliminated altogether. And all this can be done using the Hyperion in the client's office.

Enhanced Service

What does this capability mean for auditors and their clients? According to Lynn Forrest, it represents a complete rethinking of the auditor's task. "With the number crunching out of the way, we can concentrate on the more important aspects of the audit," she says. "Instead of spending our time in repetitive calculations, we can look closely on the impact of the figures and what they mean for the client's business. From the client's point of view, this means that we can provide an audit that has a real bottom-line benefit. We're using the micro as a tool to enhance the quality of the audit services we provide."

That benefit is being made available to clients throughout Thorne Riddell, and further afield as well. Michael Meagher explains. "Our firm is actually part of a much larger entity," he says. "We're members of the international firm KMG - the fourth largest public audit accounting firm in the world." Microcomputer-assisted audits using the WPP are already being conducted in the U.S. by Thorne Riddell's sister firm Main Hurdman, the American member of KMG, and within the year the micro will be in use in KMG audits throughout Europe, the Far East, and everywhere else that the firm is represented. It's worth noting that the Hyperion is becoming the principal portable microcomputer for KMG around the world.

Tax Matters

While the micro has made a big impact in the audit area, this is far from the only use that Thorne Riddell has found for Hyperions. The firm's tax services, for example, are rapidly "going micro", as supervisor Gene Rheaume, another enthusiastic microcomputer booster in the Ottawa office, explains.

"Our people are using micros for both corporate and personal tax work," says Rheaume. "On the corporate side, we have a software package that automates the preparation of tax returns for our corporate clients. It greatly improves our year-to-year efficiency on these returns. A change in financial statements, for example, can be quickly reflected in the tax return just by pressing a few keys. It saves time, and improves the accuracy of our work."

Rheaume is also positive about the firm's micro applications in personal tax engagements. Currently, a number of tax software packages are being used in the firm to simplify and enhance work in the tax planning area.

One of these packages allows rapid calculations of the effects of various planning strategies on a client's tax position. A window display is on the screen at all times to give the professional an ongoing readout of the client's taxable income, marginal tax rate, average tax, dividend tax credit, and other significant figures. Another piece of software applies similar capabilities to client situations involving income splitting between spouses - an even more complex tax problem.

The great flexibility of these packages lets the professional try out a variety of "what if" scenarios to find the most tax-effective planning strategies for a client. According to Rheaume, microcomputer tax capability is paying big dividends for the firm. "Clients are most favorably impressed," he says. "Suppose a client phones one of our people with a question about what a particular change will mean for his tax position. Where we have used the software with the client before, we simply key in the new figures, and the adjusted numbers are displayed right there on the screen. The client has his answer in a matter of minutes, instead of hours and days!"

This kind of direct client appreciation - where clients can see the benefits of the microcomputer for themselves - is becoming increasingly important to the professionals at Thorne Riddell. Lynn Forrest explains how the firm is using Hyperions to assist clients with forecast preparation.

"We get a great many requests for forecasts - usually from small to medium-sized business," says Forrest. "Often, owner-managers are asked to provide forecasts by their bank manager as a part of the documentation for a loan; or a person who is starting a business might require forecasts to help in obtaining initial financing. The client gathers basic financial information, and we use a spread sheet program to prepare a complete set of forecasts - cash flow, balance sheet, and income statement - in a very short time."

Gene Rheaume: "Graphics capabilities help us to communicate financial information to clients."

It's Forrest's experience that one forecast leads to another. Once clients see how simple it is to perform projections on a microcomputer, they can often find opportunities to use forecasts for their own internal management purposes, rather than just as loan documentation. "Without a micro," she says, "a forecast is just too time-consuming to develop on a regular basis. Using our Hyperions, owner-managers can, if they want, incorporate forecasts into their regular management information."

Seeing Is Believing

Gene Rheaume provides another example of a microcomputer application that has really taken off with Thorne Riddell's clients - graphics capabilities. "The layman understands graphs a lot better than columns of figures," he notes. "We use graphics as a tool for translating financial information into a format that is easier to visualize and hence more useful to the client. For example, we can show clients graphic representations of year-to-year changes in their financial positions. Or we can graph medium-term trends in various aspects of their operations. Ratio analysis is something else that clients respond well to in graphics form."

Graphics are an excellent tool for improving communication to the client - and they can also help the

auditor's work. "Using graphics, an auditor can visually pinpoint areas where a company's operations might be out of whack," says Rheaume. "For both auditor and client, a graph can be worth a thousand words - or in this case, a thousand journal entries."

As well as using its Hyperion to help clients, Thorne Riddell is also employing the machines to assist in the management of its own operations. Probably the most critical aspect of any accounting practice is the time spent by professional staff, and the micro can assist the accountant in allocating and controlling this vital resource.

Lynn Forrest talks about the advantages of job scheduling by microcomputer. "In the busy season, scheduling professional staff can be a nightmare," she notes. "You sometimes have to perform cartwheels to fit changes into the schedule." Controlling job scheduling with the microcomputer allows Thorne Riddell to cope with this task much more efficiently. The firm also uses the micro as a time-budgeting tool, to keep track of time budgets for specific jobs. It is in this area that the Hyperion has proven to be a major boon.

Growing Applications

The listing of Hyperion applications within Thorne Riddell goes on and on. Some partners, for example, have made use of the power of database management systems in their daily tasks. Michael Meagher, whose office responsibilities include personnel, uses the database capabilities of LOTUS 1-2-3 on his Hyperion. "We've developed a personnel database that includes information on everyone in the office," he notes. "We use it to keep track of our staff's special skills, accreditations and degrees, and relevant dates - even birthdays." Other partners have developed databases on prospective clients, enabling them to track practice development efforts by staff members.

Like any other accounting firm, Thorne Riddell must handle a great deal of typing. The microcomputer offers the firm one more solution to the inevitable problem of developing a word processing capability.

Another professional microcomputer tool that is in use in the Ottawa office is a mortgage schedule program. Designed within the firm for maximum ease of use by all staff, the package can quickly give the user a print-out of an amortization schedule. Totally compatible with the Hyperion, it allows the user to input data on a loan amount, interest rate, number of payments, compounding frequency, and so on. The package has proven to be very useful both in audits and for "what if" calculations in business advisory consultations with clients.

Something Unique

What all these applications add up to is nothing less than a revolution in the public accounting profession. The growing use of microcomputers is creating a new standard for professional services - and it's becoming imperative for accounting firms to meet that standard, by learning to use micros effectively in all their endeavours. As Michael Meagher says, "the people that don't catch the wave will not be able to survive. The microcomputer is allowing accountants to operate with ever greater efficiency, and in the future it will become increasingly difficult for the non-user to compete."

But the most important implication of the micro for the profession, according to Meagher, is the way it allows accountants to enhance client service. "Clients are our reason for being," says Meagher. "In my view, the micro gives us a golden opportunity to serve clients more effectively. It allows us to offer something better, something unique - and in today's world, that's no small advantage." ✪

Helping Clients Down The Micro Road

It's no secret that the microcomputer has brought a large number of benefits to Thorne Riddell and its clients. And in the process of bringing micro capabilities onstream, many members of the firm have developed significant expertise in the microcomputer area. That's why Thorne Riddell has started to offer its accumulated knowledge to clients, with a complete range of microcomputer advisory services.

Bill Walsh, data center manager in the firm's Ottawa office, explains the services that are available through Thorne Riddell. "We work with a bundled services concept," says Walsh. "That is, we can provide clients with every article they need to get their microcomputer system up and running."

As Walsh notes, there's a lot more to implementing a micro than merely picking a machine from a computer store's inventory. "The most important part of acquiring a microcomputer system has very little to do with the computer itself," he says. "The very first thing a person should do is define his needs - and that's one of the areas that we can really be of assistance."

By looking at all aspects of a company's operations, Thorne Riddell advisors can provide a realistic assessment of the client's requirements - which may or may not include a microcomputer. If a micro solution is indicated, however, Thorne Riddell can assist the client by providing a service package to assure a smooth transition to a microcomputer environment.

What's included in the service package? "Basically, it gives the client everything he needs," says Walsh. "We will identify tested, proven software and hardware that will perform effectively in the client's situation. After the client has purchased the appropriate equipment (such as the Hyperion), we will take charge of set-up and implementation, and we'll train the staff to operate the system. As well, we'll provide an on-going 'hot-line' service to assist the client with problems as they arise."

According to Walsh, these services fill a major gap in the microcomputer market. "A prospective computer owner can buy at a computer store, but he won't get much help in defining his needs or implementing the system. A computer consultant may be able to provide him with a needs definition, but not with ongoing support and hand-holding. Our services cover all the bases. They're specifically designed for the microcomputer, and they take most of the worry out of getting a microcomputer system."

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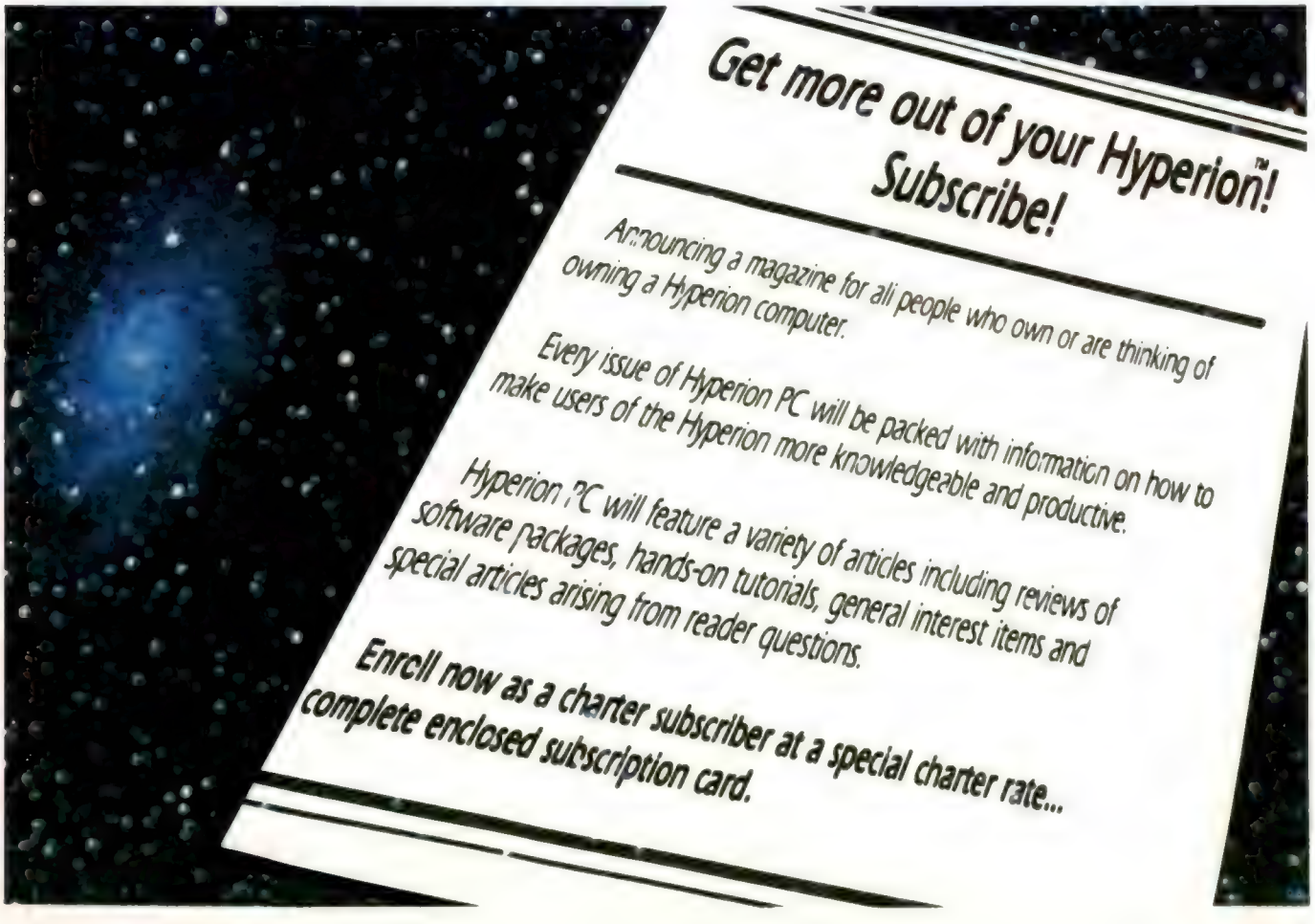

F6: Edit

IN:SCRIBE is a fine little word processor. It is fully integrated with the Hyperion and it can be the workhorse of any Hyperion system. It works easily and reliably; and although it's intended to perform relatively simple tasks, it has the potential to do much more.

To get things started in this first issue, I'm going to take a critical look at IN:SCRIBE, examining its fundamental strengths and occasional weaknesses. I'll also mention some of the program's advanced features.

That's what this column is all about. Each issue, I'll help you get more out of IN:SCRIBE - and text-processing on the Hyperion in general. There will be detailed instruction for setting up useful "Mykey" programs; mini-tutorials in advanced editing; introduction to business applications such as document formatting and form letters, and many more practical tips and techniques. Going beyond IN:SCRIBE, there will be reviews of other word-processing programs and utilities that run on the Hyperion, or enhance IN:SCRIBE.

By way of a brief introduction - I am a broadcaster and free-lance writer, currently a network radio producer for the Canadian Broadcasting Corporation. My training and work have been primarily in the fields of music and technology, always tied together by a need to write, learn and communicate.

My fascination with computers seems like a natural outgrowth of these interests. I work with several computers, including Atari, Apple and IBM machines, but my main work tool is the Hyperion. As a writer, I have used most of the major word-processing systems available for microcomputers.

Why IN:SCRIBE?

There are something like a hundred word-processing programs available for IBM-compatible computers. So why does Bytec offer its own unique word processor for the Hyperion?

The answer has to do with style and philosophy. Hyperion is a business-oriented system, targeted for managers and executives. Bytec has stressed ease of use and functionality from the outset. When they looked for software to package with the system, the designers found suitable products already on the market for spread sheet calculation, data management and graphics. But for communications and word processing, they decided to write their own implementations, taking full advantage of Hyperion's special qualities, and tailoring them to anticipated user needs.

Now, I have to admit that I don't fit Bytec's image of the typical Hyperion user. I look at IN:SCRIBE from the perspective of the professional writer, and the demands that I make of the program go well beyond the objectives of its authors.

That doesn't mean that I expect IN:SCRIBE to rival full-featured programs that cost twice as much. But I do think that, within its deliberately restricted range of application, it has to measure up to the current high standards in word-processing software.

The State of the Art

How might the perfect word-processing package be described? Four important characteristics spring to mind: ease of use, power, reliability, and flexibility. The program should be learned without a lot of pain, and the commands should be easy to remember. It should manage complex text-handling tasks quickly and efficiently. It should do so without endangering or losing the work at hand. And it should incorporate enough operating features to adjust to varying situations and demands.

Every word-processing program includes certain fundamental features, such as word-wrap, and the ability to delete, insert, or replace text. Most can also handle a range of extended features: manipulating whole blocks of text, finding and replacing particular words throughout an entire document, adjusting page format after a document is completed, and more.

The success of any word-processing program lies in the way its authors have integrated an array of operating features into a usable system, a system that achieves the four essential qualities of ease, power, flexibility and reliability. No wonder the ideal program has still to be written: who could remember all the commands?

For better or worse, every word-processing program has its own personality and limitations. Some are powerful, but fiendishly difficult to learn. Others are friendly, but not so capable. I've even worked with a few programs that can't do much, but are hard to use anyway!

IN:SCRIBE falls into the limited, but easy-to-use category. It's a tool for writing letters, memos, and short reports. It is not designed for complex tasks like writing novels, producing form letters, and laying out newsletters.

By limiting the scope of IN:SCRIBE's capabilities, the authors were able to concentrate on making the program easy to use, integrating it fully with the computer. This is "dedicated" software, designed exclusively for the Hyperion. Therein lies IN:SCRIBE's beauty.

What You See...

IN:SCRIBE is a full screen-oriented editor. The layout you see on the console display is exactly what you will see on paper when you print the document. That includes underlining, boldface, subscripts and superscripts. It also includes page breaks, line width, justification, and column alignment. When you send an IN:SCRIBE file to your printer, it's just like performing a series of "screen dumps", every character reproduced on paper just as it appeared on your monitor screen.

Many word-processing programs claim to be screen-oriented. I have worked with most of the popular systems, and I have yet to find one that comes as close to meeting the "what you see is what you get" ideal as IN:SCRIBE.

Take boldface emphasis, for example. In many screen-oriented word processors, you know that a word has been "bolded" because it

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has print control characters before and after. It may appear as "Bword B", or something similar. This makes the length of the line look wrong on the screen, because control characters aren't included in the character count. You can get rid of the control characters and see accurate page layout by issuing a print-check or "view" command. But this procedure is awkward and you can't see word enhancement. With IN:SCRIBE, you see the word in highlight on the screen, in context, all the time.

The same goes for anything you do with IN:SCRIBE. You never have to wonder whether the operation you just performed was a success. If the screen display looks right, all is well. If it's not exactly the way you want it, keep trying until you get it right. I haven't seen this characteristic so successfully implemented on a microcomputer before. This one feature, more than any other, makes IN:SCRIBE an essential component of the Hyperion system.

What You Get

The fundamental function of a word-processing program is entering and editing text. Beyond accepting input from the keyboard, this involves moving through the document after it has been typed, and making deletions and insertions.

IN:SCRIBE has a comprehensive set of cursor movement functions. You can move ahead or back, a single character at a time; or by the word, line or paragraph; or you can move straight to the beginning or end of the document - all this with just the numeric keyboard and the Control key. There is also an unusual "Go To" feature, using a soft key, to move directly to a page and line number that you specify. Getting around in the text couldn't be easier.

Simple corrections are made by typing over existing material. The old letters disappear as you go over them. Inserting new material without deleting the old is also a breeze. You can do it character by character, or, with the touch of a key, you can switch to "insertion" mode. In this mode, you can enter an unlimited amount of new material as the existing text magically moves out of the way.

Deletion can be done by single character, by the word, by complete lines, or by "blocks" that you define yourself. You can also delete from the cursor position to the end of the same line. Unfortunately, there aren't enough standard keys on the keyboard to keep all these functions logically grouped together, so most deletions make use of the soft keys (function keys, F1-F10, along the top of the keyboard). This means that deletion generally requires several keystrokes, and you have to remember the proper soft key. (More on soft keys later.)

I often find myself wishing there were more delete modes available in IN:SCRIBE. I'd like to be able to remove sentences, paragraphs or pages, without having to define a block first. Adding these functions to the program would have been simple enough, but they would have increased its complexity. And it isn't very hard to adjust to life without them.

Advanced Editing

It's possible to do a great deal of useful work with just the basic editing functions. But IN:SCRIBE has a range of powerful advanced features, including global search-and-replace, cut-and-paste and keyboard macros. IN:SCRIBE labels these functions as Find/Replace, Block Move/Copy, and Mykey, respectively.

The Find and Replace commands, along with Repeat, are extremely useful. You define a word or string of characters to find, and a word or string to replace it. Then you can quickly locate every occurrence of the defined word in the document, and replace it if you wish. IN:SCRIBE manages it with four logically-grouped soft keys, simple and easy.

This facility can be used in several ways. You can find a subject area within a long text, when you can't remember the page number, by searching for a key word related to the subject. You can correct a consistent misspelling or incorrect word throughout a document, quickly, without any typing. Or you can save a lot of work in the initial typing by specifying a "code" for a frequently-used word or phrase, then finding and replacing the code when the document is complete (i.e. type "**" when you mean "word-processing", then automatically replace every "**" with "word-processing" when you're finished).

Block Move and Block Copy are also powerful commands. They are used to shift pieces of text from one location to another (like "cutting and pasting") of a typed manuscript, and to replicate part of a document. The move function is indispensable in the revision process for restructuring the manuscript or letter. The copy function has a number of applications, such as repeating often-used phrases, or making a comparison of two sections of text (in a memo, for example: "the contract reads... it should read... please make the necessary changes").

Surprisingly, the block operations are the least well-implemented IN:SCRIBE editing functions. When you move a block, it should materialize at the cursor position, but with IN:SCRIBE this doesn't happen. Instead, the block inserts itself on the line above the cursor, maintaining the same "shape" it had in its original position. This usually results in an "orphan" block that is separated from the body of the text, as in this example of two blocks moved from above:

the same "shape"
from the body

Note that the two copied phrases are in the same position on the line as the original phrases above them. The paragraph must be adjusted after the move, to integrate the moved text. It really isn't difficult once you understand what is happening, but the IN:SCRIBE manual doesn't describe this quirk, and you have to learn by trial and error.

With "Mykey", our deliberately straight-forward program steps out of character to include a rather exotic and sophisticated feature. It allows the user to store eight sequences of up to 200 keystrokes, for execution by the single stroke of a soft key. This function, otherwise known as "keyboard macro", is rare even in the most complex word-processing programs.

Although this is an extraordinarily useful tool, I have a feeling that Mykey may not be used to best advantage (or used at all) by many typical Hyperion users. It is implemented with amazing grace, using a single line of soft keys, and it's easier to use than similar functions in other programs. But to someone with little experience of programming, or of computers in

general, its purpose may seem too hazy to bother.

That's a shame, because Mykey can be used to overcome some of the limitations inherent in IN:SCRIBE's deliberate simplicity. For example, the program has no provision for double- or triple-spacing, but Mykey can be programmed to go through an entire document adding blank lines, to create any desired spacing.

Mykey can be used to execute any combination of commands and text, up to 200 keystrokes. That makes it possible to program letter headings, "boilerplate" phrases, document formats, and form-letter components - or just a hard-to-type phrase or word that you'll be using a lot. All it takes to store a sequence is a pair of soft keys (Learn and Label); and changing a stored macro is just as easy.

All in all, creating and editing text with IN:SCRIBE is a joy. There are a few quirks, especially when it comes to manipulating blocks, but they are easy to overcome.

The Way You Want It

The other half of a word processor comes into play after the text is entered and edited - formatting and printing. And it's at this point that those of us who are accustomed to more complex software get a bit frustrated about IN:SCRIBE's limitations.

Formatting the document with IN:SCRIBE is simple and elegant. With only the slightest exertion, you can change the width of the lines, justify the text, alter indentations, and change page breaks or length. But that's just about it; no proportional spacing, no variation of format within the document, no double spacing or column alignment. All of these things can be done, but only with strenuous manipulation.

Remembering that this is a word processor for light duty - letters, memos and short reports - the formatting limitations are not terribly significant. But IN:SCRIBE does have one great logical flaw that shows up when you begin to reformat a document.

The program deals with formatting on a paragraph-by-paragraph basis. But the only way it can recognize a paragraph is by finding a preceding blank line. This makes it absolutely essential to enter an extra carriage return at the end of every paragraph - a strange procedure since this is just about the only time you enter a carriage return at all! It also means that you have to begin every page with a blank line (carriage return). This is another of those things that the program documentation never mentions. But again, it's easy to cope with, once you know about it.

Getting It In Print

IN:SCRIBE is also a bit odd when it comes to printing the document. (See Help column of this issue for the procedure to use when you want to print directly from IN:SCRIBE.) It's difficult to print anything while you are in the program. You have to exit to DOS (remembering to save your work with Savall or Savdoc commands), and use DOS commands to direct the file to the printer.

This has its advantages and disadvantages. On the plus side, it means that you have a great deal of flexibility. For example, you can direct the file to modem (for electronic mail and the like) as easily as you can to a printer. You can also use different types of printers easily, by modifying the DOS mode parameters with print filters. These filters are available for a wide range of printers, including Epson, Diablo, Qume, NEC, Okidata, Toshiba, Santec, Centronics, C.Itoh, and Mannesman Tally. Or you can install your own custom device driver. Every other word-processing program I know requires re-configuration, a sometimes tedious process, when changing printers.

In fact, the applications for IN:SCRIBE-created files are limited only by the operating system. You can use IN:SCRIBE to create program code. It's much better at this than EDLIN, especially for "structured" programming (i.e. Pascal). And if you're daring enough to try using PCDOS 2.0 (which isn't yet fully compatible with Hyperion), you can queue several IN:SCRIBE documents to print in sequence. This feature presents some useful formatting possibilities. As the operating system evolves, IN:SCRIBE's printing options will continue to expand.

The great thing about printing from IN:SCRIBE is its complete integration with the screen display. As long as the printer is properly linked with the computer, the hard copy comes out exactly as you saw it on the monitor. It's quite a relief from the curious problems that tend to crop up with most word-processing programs.

Getting It Right

One of the strong points of the Hyperion system, and IN:SCRIBE, is ease of use, or "user friendliness". The combination of soft key menus and the on-line "help" function makes for smooth sailing once the basic concepts of a program are understood.

IN:SCRIBE's soft key implementation is a great success. This program has a more complex web of commands than any of Hyperion's other integrated software, but it's still wonderfully easy to use. There are nine soft key lines in all, logically grouped and inter-connected. The Help key is always available on F10, and the help messages (describing the function of each key on the current line) are effective as long as you take the time to learn the commands first.

Unfortunately, it isn't easy to learn this program from the documentation provided. I have already noted a few of its inconsistencies and failings, and there are many more. The difficulties can be summed up in two words: not enough. Not enough examples, not enough detail, not enough advice on concrete applications. The manual is well-organized and clear as far as it goes, but it doesn't go far enough.

That's where this column fits in. Among other things, it will serve as an on-going user guide for our unique and special word processor. Beginning in the next issue of Hyperion PC, it will take up where this overview ends, and get into the nitty-gritty of really making IN:SCRIBE work.

I also hope that this column will become a forum for sharing information and ideas from readers. Please write with comments, suggestions or questions, and I'll do my best to address them. ✪

Kevin Elliott is a Broadcaster, Writer and Computer Consultant. He is currently an Executive Producer for CBC Radio and Stereo Network and free lancing as a Technical Writer and Systems Consultant to small businesses.

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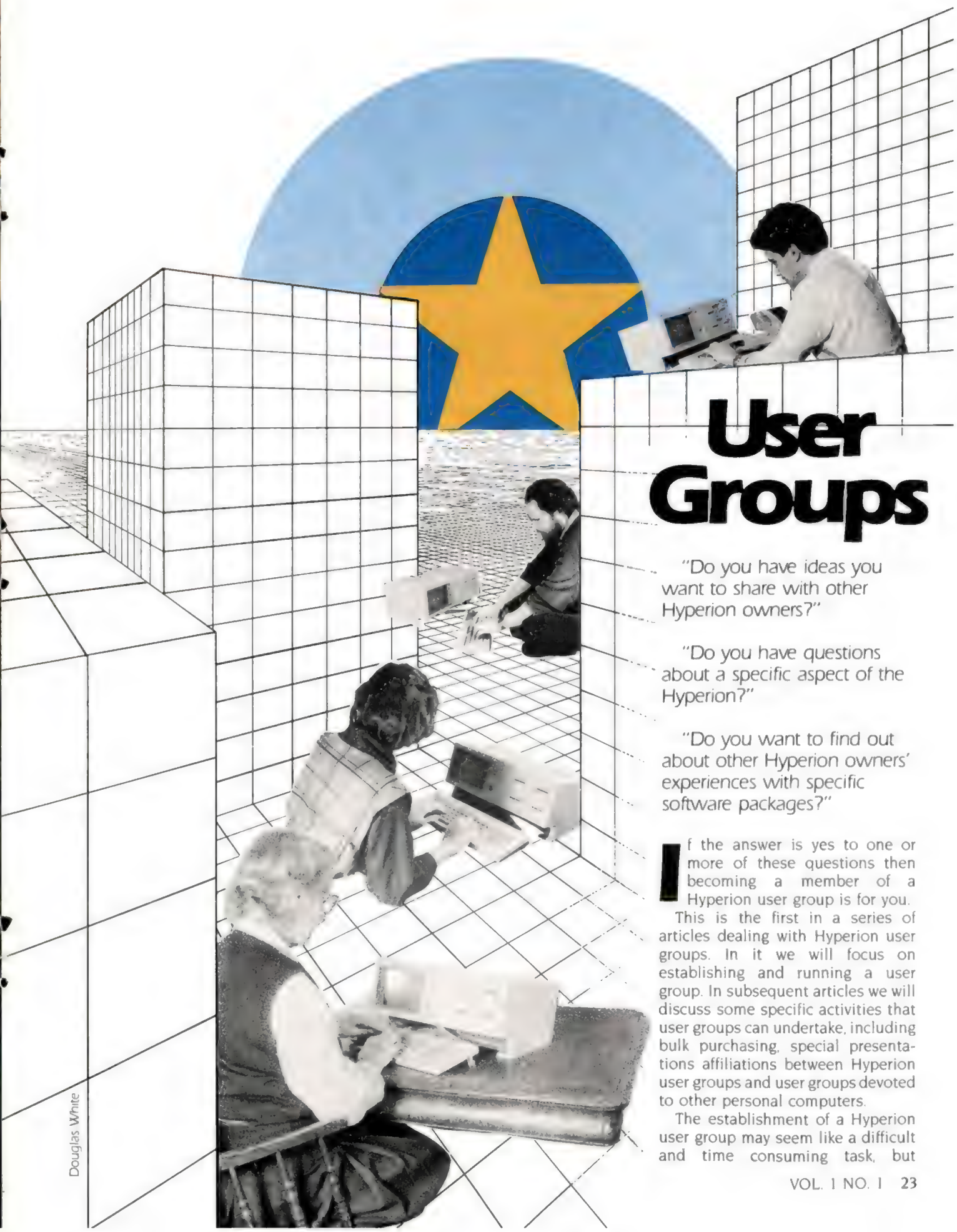

Douglas White

User Groups

"Do you have ideas you want to share with other Hyperion owners?"

"Do you have questions about a specific aspect of the Hyperion?"

"Do you want to find out about other Hyperion owners' experiences with specific software packages?"

If the answer is yes to one or more of these questions then becoming a member of a Hyperion user group is for you.

This is the first in a series of articles dealing with Hyperion user groups. In it we will focus on establishing and running a user group. In subsequent articles we will discuss some specific activities that user groups can undertake, including bulk purchasing, special presentations affiliations between Hyperion user groups and user groups devoted to other personal computers.

The establishment of a Hyperion user group may seem like a difficult and time consuming task, but

approached properly, rewards will far outweigh the effort. Here is a general set of guidelines that can be used to establish a viable Hyperion user group:

1 If you know of other Hyperion owners, or people who are thinking of buying a Hyperion, then get them together informally to discuss working together to establish a user group. At this informal meeting, select a time and a place for your first meeting. Experience has shown that monthly meetings held in the early evening are preferred by most people.

2 Inform all local Hyperion distributors of the time and the place of the meeting. Many distributors can provide you with the names of other Hyperion owners who have mentioned an interest in belonging to a user group. Contact them directly. In many areas, the local radio stations have community bulletin boards. Send them an announcement of your inaugural meeting.

3 At the first meeting, encourage those attending to assist in running the user group. Again, experience has shown that you will need someone to look after membership, someone to coordinate the publishing of a newsletter and someone to be in charge overall.

4 Until the group is faced with the expenditure of money, it is a good policy to avoid setting membership fees. However, at this point someone will have to be appointed to handle the group's finances. For advice on how best to handle this, see a local banker.

5 In the first few meetings most of

continued on page 27

Being firm believers

in the benefits of HYPERION user groups, we offer the following services:

1) We will publish, free of charge, a list of all user groups. Just send us a note giving the name of the group, a contact person (be sure to give us an address and telephone number) and the date, time and place of your meeting.

2) Send us a copy of your newsletter. We will publish any items that are of general interest to our readers. Both the author(s) and the user group will be credited with any material that we publish.

3) If any group develops innovative ideas regarding the organizing or running of user groups, let us know. We would be pleased to share this information with our readers.

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F9: Explain

MODE

The MODE command is used to alter the environment in which the disk operating system operates, and thus also the manner in which the Hyperion behaves in certain situations. Once MODE is set, it will rarely be used again, unless connecting a printer or running special software.

MODE is used to regulate the action of the screen, the handling of the printer, the control of the serial port, and the size of drive C. The current settings may be viewed with the simple command MODE SHOW, as shown in the example below.

Screen Column Width

Although the "Column Width" of the Screen section of MODE is usually set to 80 characters per line, it may be changed to 40. This is the DOS equivalent of the WIDTH 40 command in BASICA.

Screen Attribute Interpretation

Each character on the screen is represented by 16 bits. One half of these define which of the 256 possible characters is to be displayed, and the other half determines that character's display attributes. With the "Attribute Interpretation" section set to IBM, the attribute bits are interpreted in such a way that a character may be displayed in any combination of underlined, boldfaced, or in reverse field (black on yellow). With this set to Hyperion and using properly written software, characters may be displayed in any combination of the IBM attributes as well as super- and sub-script, and double width.

IBM Screen Board Imitation

The Hyperion can run programs written to use either the IBM color graphics or monochrome display boards. The "Screen Board Imitation" part of the MODE Screen section is thus usually set to Either.

Screen Attribute Translation

The "Attribute Translation" part of the MODE Screen section regulates how the attribute parts are set to display each character as it is received from a program. With this set to ANSI, standard sequences determine the attributes for all characters that follow. One such sequence could mean, "All characters that follow are to be underlined," and another, "All characters that follow are to be displayed without any special attributes." The "Attribute Translation" section may be set to OFF for no special handling, or to IBM to make the Hyperion screen act like that of an IBM. The Technical Reference Guide shows how to write a screen translation program, the name of which could be typed in after External for specialized applications.

Screen Command Line Environment

The softkeys are controlled by the "Command line environment" part of the MODE Screen section. With this set to Hyperion-Key-ON, the softkey legends are displayed on the screen and the softkeys perform their labelled functions. Otherwise, no softkey labels are displayed, and the softkeys perform in DOS as they do in EDLIN.

Screen Wait State

With the "Screen Wait State" portion of the MODE Screen section set to WAIT - YES, the screen will turn off after about three minutes of keyboard inactivity. With this on WAIT - NO, the screen will stay on continuously.

LPT1: Character width horizontal spacing

The "character width horizontal spacing" part of the MODE LPT1: section is usually set on Normal/80 to ensure that the attached printer is set for 80 characters per line. Changing this to Compressed/132 sends control signals to the printer to switch it to 132 characters per line.

LPT1: Lines per inch vertical spacing

Normally, the "Lines per inch vertical spacing portion" of the MODE LPT1: section is set to 6. This initializes the printer to print six lines per inch. Changing this setting to 8 sends the proper control characters to the printer to change this to eight lines per inch.

LPT1: Output translation

When sending characters to the printer, the Hyperion notifies it of special fonts such as bold-faced type by sending standard control sequences. Normally these are translated for the printer by a print filter whose name is typed in after External in the Output translation

```
Screen:
Column width             : 80
Attribute interpretation: IBM
Local Screen Memory Map : Color
Attribute translation    : ANSI
Command line environment: Hyperion-KEY=ON
Screen Wait State:       : WAIT=YES

LPT1: (Printer)
Character width horizontal spacing: Normal/80
Lines per inch vertical spacing    : 6
Output translation                 : STRIP
Redirection through external port : Parallel [||]

COM1: (Serial Communication [¦])
Baud Rate        : 9600
Parity           : None
Data Bits        : 8
Stop Bits        : 1
Retry on Timeout: No

C: (Memory Disk)
Logical Disk Size: 90
C:
```

Typical screen display of mode settings for the Hyperion's operating system

To display your mode settings, type after the prompt: MODE SHOW *then press return.*

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portion of the MODE LPT1: section. If the print filter is not available, this may be set to STRIP which removes the control sequence from the print stream. If set to OFF, nothing is modified, and any embedded control sequences will be printed as characters.

LPT1: Redirection through external port

The LPT1: "Redirection" part of MODE determines whether output destined for the printer is sent through the parallel or serial port. The connections for these ports are found on the rear of the Hyperion. If the serial port is being used, the COM1 section of MODE must also be set appropriately.

COM1:

The COM1: section of MODE controls the serial port on the rear of the Hyperion casing. The baud rate, parity, data bits and stop bits must match the settings on the device (often a printer) which is connected to this serial port. If the "Retry on Timeout" part is set to No, then as soon as the remote device signals that it cannot accept any more data, the Hyperion will report an error condition on the screen. For most printers, "Retry on Timeout" should be set to Yes. This will make the computer, which usually sends much faster than the printer can print, keep on trying to send so that when the printer is again ready for data, it is sent immediately.

C:

The Master User Diskette supplied with the Hyperion sets the size of the internal RAM drive C: to 90 kilobytes. For applications where fast access is desired to large amounts of data or programs, 90K is not large enough to contain it all. For applications where the program itself is very large, the 90K size of drive C: is too large as it doesn't leave enough room in main memory. The C: section of MODE allows the user to set C: to a size between 0 and 160K. This change does not take effect until MODE is exited, and the system rebooted.

KEY EDIT

Unless you have an early Hyperion, your DOS shows three blank legends for F6, F7 and F8 in what the manual calls the "DOS Softkey Line". Using KEYEDIT, you may change these so that often used programs such as IN:TOUCH, ALADIN, or IN:SCRIBE are available at the touch of a single key. In fact, you can change the label or function of any key in any softkey line in DOS except for F10. The manual and the on-line EXPLAIN KEYEDIT show how the program works. With a bit of thought, you can make work a lot easier for yourself by customizing your own DOS diskettes.

If you have an early Hyperion, you can still change your DOS softkeys. See your dealer and get a copy of KEYEDIT.COM,KEYEDIT.EXP. and the new COMMAND.COM that is on the up-to-date Master Diskette. The .COM files must both be on any system diskette you wish to modify. At the same time, get a copy of the program instructions.

MASM, CREF, EXE2BIN, LINK and DEBUG

MASM.EXE is a program found on the Master Programmer Diskette. It is the Microsoft macro-assembler and is used by programmers who need to make small or fast programs. MASM is to assembly language programmers what BASICA is to BASIC programmers.

CREF.EXE and EXE2BIN.EXE are also used in assembly language programming. LINK.EXE is used to join assembled or compiled programs into a form that can be run. DEBUG.COM is a very handy program that can be used to examine, change and in general "debug" programs in memory or on disk. Since it bypasses the normal "safety" procedures of DOS, it is best used by the calmly confident or carefully curious user. ✪

User Groups continued

the time should be devoted to round-table discussions of the attendees' interests and problems. A formal program need not be established until the user group has been meeting for several months. Some of the things that members find very useful are a list of their fellow participants, a list of the specialized software that various participants are familiar with, and technical tips from people who have experimented.

6 Once the group has been operating for a number of months on a fairly informal basis, then the whole question of a formal organization can be addressed.

The ultimate aim of any user group should be quality not quantity. A small group of interested Hyperion owners meeting on a regular basis will find sharing ideas, suggestions and tips very beneficial. ✪

Hyperion user group of Ottawa, Canada, during informal discussion.

Understanding and Using LOTUS Graphics

Random MacIvor

A good picture may be worth a thousand words: a poor picture may cost many more. Good graphs are generally very easy to understand and appear much simpler than the underlying data. Often this is the result of considerable effort by the author. Preparing good graphs is rarely simple, although powerful integrated computer software like LOTUS 1-2-3 has given us many of the capabilities of the graphics artist. Failure to understand the capabilities and limitations of these programs can result in poor graphics, misunderstandings and many words of explanation.

This series of articles is intended to help you understand LOTUS graphics, and introduce you to their use for analytical and presentation purposes. Initially you will be introduced to the LOTUS pie charts. Future articles will enhance these analytical charts to presentation quality standards through the use of color and formatting a graphics page. These articles will introduce the bar and line graphs, the manipulation of data to achieve better graphs, and the use of patterns and form. Finally, we will cover the XY graph, advanced data manipulation techniques, and the use of inter-related graphs and mixed mode presentations of combined text and graphics.

Graphics: Convenient Business Tools

Graphics programs are usually classified as either analytical or presentation graphics. Analytical graphics are used to analyze data. They are the tools that a manager uses to determine whether his or her data contains significant changes from prior periods or other data bases. They highlight or determine the existence of trends or variance from historic patterns. Presentation quality graphics, on the other hand, are the tools that a manager uses to explain data or variances to others.

What qualities distinguish these graphic tools? Analytical graphics must be readily available to the user and reasonably easy to use. Preferably, they should not require separate data entry but be available while some other task is being performed. For more complex applications they may stand alone,

but ease and simplicity of use are essential. The graphics types may be crude and comprised of rudimentary graphs utilizing letters or other keyboard symbols arranged in a line, bar or XY graph. The emphasis is on providing a convenient tool with which the prime user can detect basic facts about the data being analyzed.

The primary purpose of presentation quality graphics is to convey selected facts to others. The data content has been defined by the analyst. Emphasis is on the quality of the chart rather than the ease and speed with which it can be generated. LOTUS has certain qualities of each type of graphics.

These paragraphs introduce the use of LOTUS graphics to analyze a work sheet, to enhance it for presentation and print it on a dot matrix printer.

Setting Up Simple Charts

Let's use the simplest type of chart to emphasize the evolution of analytical to presentation graphics. The simplest relationship that can be accomplished graphically is the pie chart. It adds several pieces of data and compares the pieces to the whole. The data from which the charts in this article have been prepared are contained in TABLE 1: a LOTUS spread sheet showing six months of income statements for a Mythical Merchandising Limited. There is a great deal of information on this work sheet which would tend to obscure the ways in which the data are related.

If you choose to follow along with your LOTUS 1-2-3 for this article, you will only need to set up the highlighted part of the work sheet. Note that the first line contains some additional information that is not really part of the work sheet, but a good work practice. The numbers are the column widths, making it easier to select print ranges. The home position for the cursor contains a brief description of the work sheet and the date it was created (or Version), unlike the DOS file description which contains the date the file was last copied to disk. Home is the easiest place to assume on a work sheet.

Assuming you have set up the work sheet, you move to the graphics mode and enter the three 'Sales' figures from the 'Year to Date' column as your 'A' range. Select TYPE, PIE, and VIEW. Not very exciting so far. Sure it's a pie chart but which figure is what segment? Select the appropriate three descriptions on the far left of your work sheet as the 'X' range. In order for the figures to correspond to the right segments the selection must be made in the same order as the 'A' range. VIEW your pie chart once again: still not exciting. But at least you can now tell what each segment represents even if part of the description is off screen.

Names

Use the NAME function to name the pie chart and you will be able to view this chart when it is needed. Enter NAME, CREATE and type in the name SALESYTD. The chart can now be recalled at any time you are using this work sheet (provided you save this version). Graph 'names' may actually be 15 characters long to help you by providing more information about the graph parameters. You are only using 8 characters so that the names will correspond to the file name of the graphs you will print.

RESET the 'A' range to the three 'Sales' figures in the 'Prior Year to Date' column. Select TYPE, PIE, VIEW. Still no incredible rush of adrenalin? Don't despair, NAME this pie chart the same way you named the other chart but type in the name SALESPR.

Use the RESET command to reset the entire graph. Don't panic if you try the VIEW function and get a blank screen. It's blank because there are no currently designated variables.

Use the NAME, USE commands and the cursor keys to recall one of the pie charts you created, say SALESYTD. Press any key to erase the graph and then enter the same commands to recall the other named graph SALESPR. If no obvious differences jump out, try going back and forth between the two graphs. The first thing that catches the eye is that the segment from nine to twelve o'clock has changed. Our graphical analysis has now revealed something significant!

Immediately after you have pressed a key to erase the screen, enter TYPE, BAR, VIEW. A bar chart! Well we're not looking for bar charts yet. The point is that when you name a graph you save all of its parameters.

Pre-Print Preview

Before you explore the conversion of these pie charts to a graphics presentation, let's learn more about LOTUS graphics by previewing them under the PRINTGRAPH program. SAVE each pie chart immediately after it has appeared on the screen by using the SAVE command on the graphics command line. Only saved graphs may be printed or previewed by the PRINTGRAPH program. Use the same names for the files as you used to name the charts, SALESYTD and SALESPR. Don't worry that these charts are still inadequate: we'll fix that later.

QUIT the graphics section and SAVE your work sheet. Because you named your pie charts they will still be with your work sheet when you return. QUIT the work sheet and enter the PRINTGRAPH function from the LOTUS access menu. We won't print these graphs now because they haven't been completed yet, just preview them so that you can see a better image of how they would actually appear if they were printed.

You should now be on the main PRINTGRAPH menu line and specifically, the cursor should be on the SELECT function. Press the return key and enter the graph selection table. The cursor should be highlighting one name on a two name list. Press the GRAPH function key (F1 for the Hyperion LOTUS program) and preview one of your pie charts. The Hyperion has entered the graphics mode. It now displays all of your segment titles that it did not display while in the work sheet mode. This is much closer to the way that the graphics will be output to your printer or plotter. As a rule of thumb, the graphics output will allow titles approximately twice as long as the full titles that appear in the spread sheet mode graphics. This can be done without losing information. Alternatively you will usually be safe if your 'X' variables do not exceed 20 characters, provided all the characters are not upper case.

Titles: Two Options

Now we'll return to the work sheet and, by adding titles, turn the charts into something we can be proud to

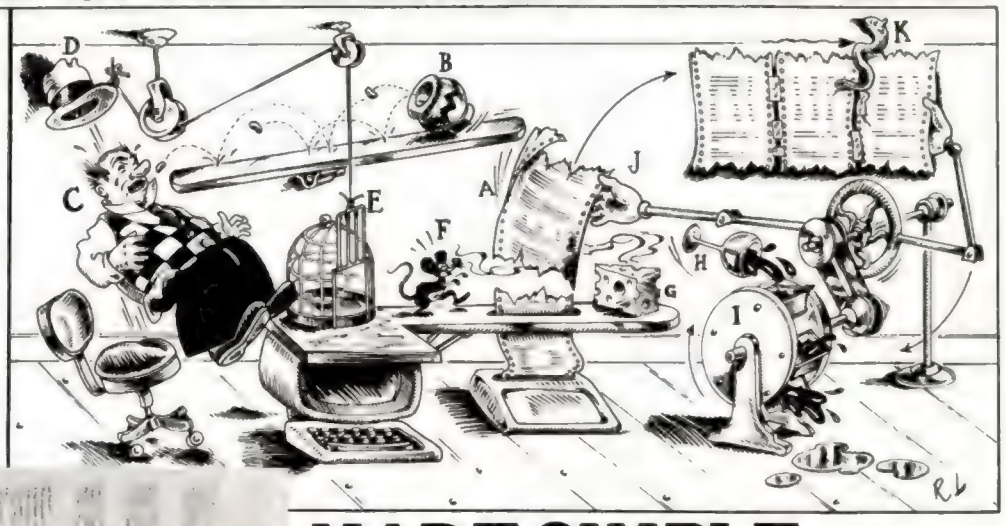
SIMPLIFIED SPREADSHEET ASSEMBLY

RISING SPREADSHEET (A) KNOCKS MEXICAN JUMPING BEANS (B) INTO MOUTH OF NEUROTIC MAN (C) WHO IS SO DISCOMBOBULATED THAT HIS HAIR STANDS ON END, DISLODGING HAT (D) WHICH OPENS CAGE (E) AND RELEASES EPICUREAN MOUSE (F).

MOUSE, INSPIRED BY SCENT OF PERFECTLY AGED CAMEMBERT CHEESE, GNAWS THROUGH SPREADSHEET, ONLY TO DISCOVER HE HAS BEEN FOOLED BY AROMA OF OVER-RIPE GORGONZOLA (G)

IN A FIT OF PIQUE HE SPILLS VINTAGE WINE (H) INTO WATER-WHEEL (I) WHICH TURNS PULLEY THAT CAUSES GLOVE (J) TO GRASP SPREADSHEET AND MOVE IT TO TAPING AREA.

SHEET IS TAPED SECURELY IN PLACE BY TRAINED ADHESIVE TAPE WORM (K).



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present. ESCAPE from the select function and QUIT the printgraph main menu. Re-enter the 1-2-3 work sheet and RETRIEVE your work sheet. Enter the graphics mode once again and recall one of your charts using NAME, USE.

Two titles can be added to your pie charts by direct entry or by reference. Let's try both ways.

First, enter OPTIONS, TITLES, FIRST and type the company name 'Mythical Merchandising Limited' return. Enter TITLES, SECOND and type 'Sales by Division Year to Date' or 'Sales by Division Prior Year to June 30', as appropriate. After entering, you will be obliged to QUIT the options menu to VIEW your revised charts. No further changes can be made from the work sheet, so SAVE your new chart to its old file name and replace the previous file.

Second, use the NAME, USE commands to call up your other pie chart. Enter OPTIONS, TITLES, FIRST then type a backslash (\ ) and the cell address where you originally entered the company name, e.g. B2. QUIT the graphics mode and enter the other appropriate 'Sales...' title in a blank work sheet cell. Re-enter the GRAPHICS, OPTIONS, TITLES mode and enter your second line title from the graph you are working on by referring to the cell reference.

This second method of entering titles is only significant if you want either title line to contain more than 39 characters. LOTUS limits directly typed titles to 39 characters and suggests that this is the safe limit for the first title line. LOTUS graphics titles are produced using true proportional spacing on acceptable graphics devices. If several skinny letters are used in the title, 44 or 45 characters may actually be used. The second title line may easily contain 80 or a few more characters, depending on the width of all the characters used (i and l are examples of skinny letters, w and m, wide letters).

Having completed these two pie charts, let's quickly do two more to complete this part of the

Table 1: Spreadsheet for Mythical Merchandising Limited

Rev Anlys 1/2 1983 12/02/83 30 — 10 — 10 — 10 — 10 — 10 — 10 — 12 — 12

Mythical Merchandising Limited
Revenue Analysis
First Half of 1983

	January	February	March	April	May	June	Year to Date	Prior Year to Date
Sales:								
Retail	3,546,432	2,127,859	2,340,645	2,317,239	2,548,963	2,803,859	15,684,997	14,212,546
Domestic Wholesale	1,789,543	1,968,497	2,165,347	2,381,882	2,405,701	1,924,560	12,635,530	11,535,646
Foreign Wholesale	254,098	456,807	1,177,391	1,824,956	1,843,206	1,824,774	7,381,232	8,444,297
	5,590,073	4,553,163	5,683,383	6,524,077	6,797,870	6,553,193	35,701,759	34,192,489
Cost of Sales:								
Retail	2,364,288	1,418,573	1,560,430	1,544,826	1,699,308	1,869,239	10,456,664	9,475,031
Domestic	1,376,572	1,514,229	1,665,652	1,832,217	1,850,539	1,480,431	9,719,640	8,873,574
Foreign	145,199	261,033	523,285	1,042,832	1,053,260	1,042,728	4,068,337	4,825,313
	3,886,059	3,193,835	3,749,367	4,419,875	4,603,107	4,392,398	24,244,641	23,173,918
Gross Profit	1,704,014	1,359,328	1,934,016	2,104,202	2,194,763	2,160,795	11,457,118	11,018,571
Expenses:								
Retail								
Premises	177,322	106,393	117,032	115,862	127,448	140,193	784,250	710,627
Salaries and Fringes	390,108	234,065	257,471	254,896	280,386	308,424	1,725,350	1,563,380
Management	236,429	141,857	156,043	154,483	169,931	186,924	1,045,667	947,503
Other	177,322	106,393	117,032	115,862	127,448	140,193	784,250	710,627
Domestic								
Warehousing	41,297	45,427	49,970	54,967	55,516	44,413	291,590	266,207
Salaries and Fringes	61,946	68,140	74,954	82,450	83,274	66,619	437,383	399,311
Management	178,954	196,850	216,535	238,188	240,570	192,456	1,263,553	1,153,565
Other	41,297	45,427	49,970	54,967	55,516	44,413	291,590	266,207
Foreign								
Commissions	57,172	102,782	264,913	410,615	414,721	410,574	1,660,777	1,688,859
Freight	21,780	39,155	78,493	156,425	157,989	156,409	610,251	723,797
Foreign Exchange	22,000	34,500	(27,000)	(31,000)	100	43,000	41,600	(74,000)
Other	10,890	19,577	65,411	78,212	78,995	78,205	331,290	361,898
Overhead								
Administration	27,500	30,000	30,300	29,997	30,597	29,985	178,379	162,434
Accounting	23,000	23,500	23,735	23,498	23,968	23,488	141,189	122,776
Executive	125,000	124,300	130,515	123,989	126,469	122,675	752,948	711,829
Other	(98,000)	111,000	127,000	124,000	117,000	87,000	468,000	410,000
	1,494,017	1,429,366	1,732,374	1,987,411	2,089,928	2,074,971	10,808,067	10,125,020
Net Profit	209,997	(70,038)	201,642	116,791	104,835	85,824	649,051	893,551

Note: The shaded area represents the information required to be entered for the first article. In subsequent articles additional parts of the worksheet will be added, so be sure to save it. The first line shows column widths.

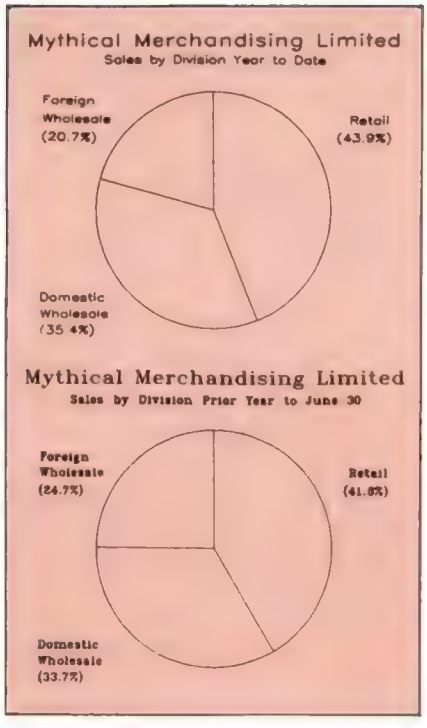

Exhibit 1

presentation package. Do and save two pie charts for the three 'Cost of Sales' divisions. NAME and SAVE them by the company names COSTSYTD and COSTSPR. The second titles should be 'Cost by Division Year to Date' and 'Cost by Division Prior Year to June 30', respectively.

Presentation

Now we want to tie our pie charts into a good presentation. Time to transfer back to the PRINTGRAPH program. Don't forget to VIEW your graphs to check that they are what you expected.

LOTUS offers you additional control over the appearance of your charts in the PRINTGRAPH program. You can control size, orientation, print type and print density or color with the right hardware or a plotter. Pie charts are both the simplest and crudest charts LOTUS prepares. These factors interact when you are preparing charts for presentation.

Keep these guidelines in mind:

1. Color communicates. A black and white chart will not hold a person's attention as long as a colored chart, nor will it present as much information (the color may mean something).

2. Small charts hold attention for shorter periods than large ones.

3. Keep your presentation simple. Text should be legible.

Let's consider how you can best prepare your graphics in terms of color, size and text with a graphics-capable dot matrix printer like the Epson FX 80.

Color

Color is limited to black, but you should try to get the densest color mode available for your printer. This is controlled by the CONFIGURE, DEVICE commands. If you have an FX 80, select the 'Quad Density Mode'. If you have any other multiple density mode printer, select its densest mode of print. The trade-off in selecting a dense graphics mode is that it converts normally fast printers to very slow devices. A quad density graph may take 30 minutes to print whereas single density takes only 2 3 minutes. Time constraints will prevent you from always using the blackest density. QUIT to the main PRINTGRAPH menu.

Size

To enter the size menu, use the OPTIONS, SIZE commands. The comparison you most want to present is between current year's sales and the prior year's sales. In order to do that effectively you will want to put both of these graphs on one page. This will require two half-size charts. Suppose you use the half-size default setting. The upper margins will be .395 inches and the chart heights will be 4.691, a total of about 10.2 inches on a normal sheet of 11 inch paper.

Dot matrix printers are not really length sensitive (unless you are using single sheets), but they are sensitive to page width adjustments. You do have to be careful that the paper is long enough to contain your graphic presentation. The FX 80 print head is offset from the page top so that you already have a 1.0 inch margin on the page. If you add this to 10.2 you are going to run over one page. Use the HALF command, then enter MANUAL, TOP and enter a new top margin equal to zero. Different top margins may be appropriate for different printers. The key is a combination of the printer's default values, graph, margin and paper sizes. QUIT the size menu.

Text

The only option left that controls the appearance of your graph is the FONT option. Use the FONT command to enter the mini menu. Select 1 and enter the font choice menu. There are four types of fonts available in two different densities. Avoid the second type of font in anything less than triple density as there will be insufficient points to make the letters attractive or, in some cases, even legible. The block modes are simple and attractive with roman and italics available as a change of pace. As the density of your graphics output drops, the more attractive simple block characters become. The object is to attract attention to the data represented by the graph rather than the appearance of the titles. Select BLOCK2 for your first font choice and BLOCK1 for the other characters.

Quit the options menu and from the SELECT command menu select your first pie chart selection SALESYTD. You will only be able to select one chart even though the select function allows you to queue graphs. This is because you want two graphs on the same page and you will use roman fonts for the second graph. After you have selected the chart, enter GO to print it.

Print

This will take quite a while unless you are in single density mode. When your first pie chart is complete use the OPTION, FONT commands to change fonts 1 and 2 to ROMAN2 and ROMAN1 respectively. SELECT SALESPR. One other little change, from the main menu line enter the command ALIGN. This command resets the page top to the line where the print head has stopped after completing the previous graph. Without this command the printer would move to a new page and start printing. When you exit the PRINTGRAPH program you will have to reset the pagetop on your printer.

Compare your charts to EXHIBIT 1. Do they convey the message?

The next article in this series will introduce color, formatting options and simple data manipulation. ✪

Terance P. Mahoney is President of a firm specializing in microcomputers, consulting and management information services.

IN:TOUCH
With the World

When our company purchased Hyperions, it carefully considered the potential for computer-to-computer communications. We anticipated the need for communicating from remote locations in the near future, with access to public databases as a secondary use. However, we have found another vital business use for IN:TOUCH communications that we had not anticipated: electronic mail. This is not the Local Area Network electronic mail normally available only in larger businesses; nor is it the mail service provided by public databases, which tend to be expensive, especially if you are located away from a direct line hookup. What we are referring to is a service that bills you the same charge per thousand characters, no matter where in the world you are sending your message: MAILBOX*.

Communications Problems

Our enthusiasm for this particular form of electronic mail relates to problems our company had a few months ago. We had just completed work on a small report (in both fee and size) that required U.S. delivery over a weekend. Courier service would cost $50 or more and would not guarantee delivery before the following Tuesday. Eventually we mailed the report in Canada by Priority Post which guaranteed delivery on Tuesday for about $27.

At that time we were negotiating other U.S. contracts. We received an envelope by U.S. Express Mail (cost $18 U.S., 48 hr. delivery) concerning a small, short deadline contract requiring collaboration between Ottawa and Washington. Rapid communications were necessary but high costs would be unreasonable for a small contract. Courier or mail services would place additional time pressure on both partners and provide slow or uncertain delivery.

At or about this time, we learned of the availability of MAILBOX, a service provided by I.P. Sharp Associates. MAILBOX provides international and inter-city electronic mail at the rate of $.75 CAN ($.75 U.S) per thousand characters to send or receive. On this basis, a nine page report, for example, could be sent for about $13 CAN and received for $13 U.S. THE SAME DAY.

Sophisticated Features

I.P. Sharp Associates is an international company specializing in time-sharing software (SHARP APL), public databases (principally on-line numeric databases) and special systems. Their time-sharing network is interfaced with an international communications network that includes access to Telnet, Tymnet, Datapac, Datex-P, PSS and Transpac. There were direct phone accesses in 49 countries, more than 500 U.S. cities, 72 Canadian cities and another 90 locations around the world. All of these locations are available on the MAILBOX system.

The system has been used internally by I.P. Sharp for some years. It has just become available to outside users of the IBM PC and compatibles like the Hyperion. In fact, IN:TOUCH probably makes it more readily accessible to Hyperion users than to most PC users because it is easy to use, yet has sophisticated features.

MAILBOX offers a level of sophistication far above that offered by the postal services for normal communications. Mail may be sent classified as PERSONAL, CONFIDENTIAL, NON-CONFIDENTIAL, URGENT and REGISTERED or any combination of these. Urgent messages are listed first for the recipient; registered messages generate a notice to the sender when they are received. You are notified of confidential messages and asked whether you want to receive the message immediately, or later when more privacy may be available.

Additional features allow you to withdraw or alter messages you have sent at any time before they are received and to check on the status of these messages. Senders may carbon copy or blind copy other users for the cost of no more than eight or nine characters.

At the recipient's end, messages may or may not be read. You are only charged for characters that you receive. The system allows you to preview your messages; that is, see who they are from and what level of classification is attached to them, e.g., REGISTERED.

MAILBOX also includes a line editor that you can use for editing

Table 1: System Configuration Parameters

Name:	"MAILBOX "
Number:	"123-4567 "
Type of Call:	(Auto-Data)
Baud Rate:	(300)
Parity:	(Even)
Data Bits:	(7)
Stop Bits:	(1)
Duplex:	(Half)
Partial Speed Send:	(No)
Local Auto Line Feed:	(No)
Hold Request:	(None)
Resume Request:	(None)
Abort Request:	(None)
Deletions: First:	(Single-08H)
Second:	(Single-7FH)
Third:	(None)
Host Enter Key:	(CR-ODH)
Host Turnaround:	(Single-07H)
Number of Nulls:	00

*MAILBOX *is a registered trademark of* I.P. *Sharp & Associates.*

```
0)
GHBGSBHSHBSBGBSGBM4M4M4M4MNMNMNMNM585858HEHEHEHEH)1111111:PURSUIT
 1234) 10.29.51 12/10/83 ATRIVIAL

SHARP APL SERVICE

NO MESSAGES PENDING
: SEND
TO BANKE
TEXT:
SALES FIGURES FOR LAST MONTH SHOW A DRASTIC DECLINE FROM THE
PREVIOUS MONTH'S SALES.  PLEASE SUPPLY ME WITH A MORE DETAILED
REPORT ASAP.

ACTION: URG;SEND
PERS. NO. 2045438 FILED 10.34.12 SAT 10 DEC 1983
TO
MAIL SERVICE COMPLETE
: OFF
  1234 10.34.29 12/10/83 ATR
CONNECTED   0.04.38   TO DATE     0.30.26
CPU UNITS    16.579   TO DATE     149.336
KILOCHARS     0.601   TO DATE       4.006
 GHBGSBHSHBSBGBSGBM4M4M4M4MNMNMNMNM585858HEHEHEHEH
```

Exhibit 1: Typical Message

those messages that you send directly or to alter text already included in the system but not yet received. It also accepts the uploading of text files to the message text system.

IN:TOUCH Usage

As there are some differences from ordinary Hyperion IN:TOUCH usage, we have set out the correct system's configuration for IN:TOUCH in Table 1. The principal differences from most of the local public service electronic bulletin boards and message services are that the system is half-duplex and requires special entries for Deletions First, Second and Host turnaround.

Let's take a quick run through the system to illustrate how it operates. Suppose you have just joined the MAILBOX system and want to send a message to your associate Daryl, a member of the system residing in Canberra, Australia. Start up IN:TOUCH on your Hyperion, press the DIALER and then ADD soft-keys. Enter the name MAILBOX, press Tab, the local MAILBOX phone number and then press the DATA softkey to enter the configuration parameters as given in Table 1. Save your entry. Make sure your keyboard is set on Caps and press the SPEAKER softkey to originate the call. Assuming that in the future you want IN:TOUCH to log you on automatically, press the LEARN softkey. When the screen clears, type O) (the capital letter O and a right bracket) and Return (see Exhibit 1).

The MAILBOX computer responds with a line of gibberish, beeps and stops. This is your cue to type in your I.P. Sharp assigned account number preceded by a right bracket. In our hypothetical example, this is)1111117:TRIVIAL and Return. Press the LEARN softkey once again as the log-on sequence is now complete.

As in the exhibit, the MAILBOX computer responds with an identifier line which includes the time and date (both in Greenwich Mean Time) and your MAILBOX identity code (in our example: Trivial). It then prints SHARP APL SERVICE and advises whether you have any messages. It then gives you the MAILBOX prompt which is a :colon.

Type SEND and respond to the TO prompt as the exhibit indicates. After you have typed the text portion of your message in response to the TEXT prompt, enter a space (press the space bar) and a Return on a separate line. The system responds with ACTION. This is your opportunity to cancel, review, set priorities (e.g., URG for urgent or CON for confidential) and then send your message. Exit the sending subsystem by entering a space and a carriage return in response to the TO prompt. When you have finished with sending messages, type OFF and the system advises you of the charges you have incurred in units.

There is a better way to send messages from IN:TOUCH that allows you more, and less expensive, control over the message. First, prepare your message text using IN:SCRIBE being sure to use only capitals and no special formatting or fonts features. Then define the whole message as a block and use the CLRBLK command to strip the control characters excluding carriage returns. (The inclusion of control characters could signal the I.P. Sharp system with which you are communicating to ignore your message.) Next, save your text file to diskette, preferably with some catchy and related file-name.

Exit IN:SCRIBE and enter IN:TOUCH. Select the dialer entry for MAILBOX and push the SPEAKER softkey. When the phone is answered by the computer you will be switched to the DATA softkey line. Assuming you taught IN:TOUCH the proper log-on sequence (as previously discussed), push the AUTO softkey. You will be answered with the usual line of gibberish; respond by pushing AUTO once again.

After the usual introductory message and information on PENDING messages, type SEND in response to the TO prompt and the pseudonym of the person to whom this message is being sent (at present this is a five letter user-selectable name). The response to this action is TEXT:, your response is to push the FILES softkey and then the UPLOAD softkey. IN:TOUCH prompts you to enter the filename of the file that you want for the text of your message, preceded by the drive on which it is to be found. (If you are uncertain of the filename, you can check it either before you enter this line or ESCAPE back to the files line to check for the filename with the DIR/P command.) After you have entered the drive, filename and pressed Return, the text file is transmitted to the MAILBOX computer exactly as you prepared it in IN:SCRIBE. You will be able to watch your file being uploaded on the screen considerably faster than you can type. It is also usually error free because it can be edited while still in IN:SCRIBE. You pay for the extra characters you type to correct errors while you are in MAILBOX.

After your Hyperion stops sending the text, push the STOP softkey and return to the data softkey line. Type a space then a Return and you will receive the ACTION prompt from the MAILBOX computer. Respond as you would for a directly entered message. If you have other messages to send, continue in the same fashion, otherwise follow through with the

continued on page 37

F10: Help

In this column, Tim Green, our Technical Editor, will HELP *Hyperion owners become more productive. As this is the first issue of Hyperion* PC, *Tim has taken some of the typical questions he has been asked in the past by Hyperion owners.*

Tim is an electrical engineer who lives in Ottawa, Canada. His professional interests include digital signal processing and satellite communications.

If you have a question Tim could HELP *you with, send it to:*

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IN:SCRIBing On The Printer

As far as I can see, the DOS just seems to treat the printer just like a file. I can print text just by COPYing it to PRN. In IN:SCRIBE, however, I have tried SAVEing a file to PRN and this doesn't work. IN:SCRIBE asks permission to overwrite (!?) PRN but then gives me an output error. Is there any way to print directly from IN:SCRIBE?

You are right about the way DOS handles its input and output. Instead of having special commands for these functions, all devices are treated just like files as far as the user is concerned. DOS recognizes the following devices.

PRN - for output only via the print filter (if installed), through either the serial or parallel port depending on the current MODE setting

LPT1 - for output only through the parallel port

AUX - for input or output through the serial port

CON - for input from the keyboard or for output to the screen.

NUL - for output to nowhere (sometimes used for testing purposes.)

Thus, you could use your Hyperion as a simple typewriter with the command COPY CON PRN, which would copy keyboard input to the printer. Actually the computer holds everything until you type the sequence <Rtn Ctrl - Z> Rtn and then prints it all

In IN:SCRIBE, you may SAVE files to PRN. where the period following PRN is essential. This will print them without error. You may also select a portion of a file with the DEFINE BLOCK command and then using SAVBLK to PRN you can print it without leaving IN:SCRIBE. I find this useful for printing partial lists or program segments without interrupting an editing session.

DOS It, Or DOSn-t It?

My dealer gave me a list of software that runs on the Hyperion. The list states that some of the packages require a DOS with IO.SYS 1.01 or lower (which I have), while others require IO.SYS 1.02C or higher. What is the difference, and where can I get the new DOS?

IO.SYS is one of the hidden system files that is copied onto a diskette when you use the FORMAT/S command. It is the bridge between all the rest of the software and the actual hardware on which this software is run. Its version number flashes momentarily on the screen when you start up your Hyperion. Earlier this year, Bytec-Comterm redesigned the main Hyperion circuit boards to improve compatibility with the PC. This necessitated changing IO. SYS. The list you have reflects the increased software that runs with a IO.SYS 1.01 DOS also runs on DOS with IO.SYS 1.02, but not vice-versa

The new DOS with IO.SYS 1.02 will not work with a system designed to use version 1.01. Thus, if you wish to run all the software on the list, you will have to have the circuit boards changed inside your Hyperion. Your dealer will be able to provide you with details

Strange Characters

I am using IN:TOUCH to talk to a computer timesharing service. When I sign on, I get a string of hollow triangles at the start of each line, and they're driving me crazy! The symbol doesn't appear in the Annex to my Programmer Guide, and I've determined that it's not a control character. What is it, and how can I get rid of it?

The front end processor of the mainframe computer to which you're connected assumes it's talking to a teletype. The triangles that it's sending you are DEL symbols (127 decimal, 7F hex). In your IN:TOUCH modem table, set one of the deletion entries to "Single-7FH" and the triangles will be banished to the land of NUL. In general, you can have IN:TOUCH ignore any character by typing its *hexadecimal* equivalent in the deletion section.

The Case Of The Missing Printer

I bought my Hyperion second-hand and got a lot of diskettes that the previous owner had been using. I find most of them frustrating to use, because when I start up the machine, it waits for the longest time before telling me: "Printer Problem: Retry or Disable". I then type the letter D to disable the printer and things work okay after that. I know what the problem with the printer is: I don't have one! How do I convince my computer of that?

Change the third line of the LPT1 setting of MODE to read: "Output translation OFF" and save this to the disk. With any other setting, the computer assumes you have a printer connected and checks for it on powering up.

Assembly Line

When I purchased my Hyperion, I intended to do some assembly language programming, and was glad to see that the macro assembler was included in the basic package. I have done a fair bit of assembler work on the PDP-11 and the Motorola 6800 and I have a few books on 8086/8088 code. After struggling through the MASM documentation, however, there are still things I don't understand and I hope you can help me:

1) How do I access the standard

input and output subroutines that I assume are stored in read only memory inside the Hyperion?

2. How do I use the bewildering jumble of PROCs, STRUCs, SEGMENTS and the like? Which of these are essential, and which are just for the sake of convenience?

3) How do I get an assembly program to run, assuming that I get it assembled and linked properly? I've tried a few, but get a multitude of error messages from MASM and LINK.

Whoever said that programming in assembler was meant to be easy? Actually, as you suspected, there are a lot of constructs in MASM that are not essential for simple programs, but which are very valuable for longer projects.

Your first question (and probably many others that you will have) is answered by the Hyperion Technical Reference Guide available through your dealer. The Hyperion's standard I/O programs are not called as subroutines; rather they are invoked by software interrupt instructions. There are some that are standard to MS-DOS, and programs using only these will work on any MS-DOS computer. Others are specific to the Hyperion. All are explained in the Technical Reference Guide.

For example, by setting AH-5 and giving the INT 21h command, the contents of register DL will be sent to the printer. By setting AH-2, the same INT 21h command will cause the contents of DL to be sent to the screen.

As an example of how to get a bare-bones assembly program to work, create the file shown in Listing I, and call it FORMFEED.ASM. Note that a semi-colon and anything to the right of it are optional comments that do not affect the program.

To assemble this, type MASM FORMFEED.ASM, FORMFEED.OBJ, FORMFEED.LST,NUL inserting any drive names before the file names as required. This should return the message that zero warning and severe errors were found. The assembly listing is in file FORMFEED.LST and may be TYPEd or printed to see the code the computer has generated.

Next type LINK FORMFEED.OBJ, FORMFEED.EXE,NUL,NUL. This should produce the error message that the stack segment is missing, which in fact it is. Ignore this and press on with EXE2BIN FORMFEED. EXE,FORMFEED.COM which is the last step in the process. Now from DOS, every time you type FORMFEED, the program FORM-FEED.COM will be run, advancing your printer to the top of a new page.

Assembly language, as you know, is much more complex than BASIC, and will not be used by the majority of Hyperion users. While the results are much more compact and run faster than a higher level program, this is at the expense of increased programming time. To be good at it, you must know the 8088 machine commands well and be able to use the assembler efficiently. This only comes from experience. Keep on plugging!

Listing 1

```
TITLE   FORM FEED UTILITY   ;This title will be printed on the
                            ;  assembly listing and is required
                            ;  if NAME is not used
                            ;
FFEED   SEGMENT PARA        ;FFEED is the name of the segment
                            ;PARA directs LINK to ensure the
                            ;  segment address in binary ends
                            ;  in four zeroes
                            ;
ASSUME CS:FFEED             ;This points the code segment to
                            ;  FFEED above
ORG     100h                ;This is required for a .COM program
                            ;
BEGIN:                      ;Any label will do (see last line)
        MOV DL,12           ;Put the form feed character in DL
        MOV AH,5            ;Get ready for output to printer
        INT 21h             ;Standard MS-DOS software interrupt
                            ;  which in this case with AH=5,
                            ;  sends contents of DL to printer
        INT 20h             ;Standard MS-DOS interrupt to
                            ;  return to DOS
                            ;
FFEED   ENDS                ;End of segment FFEED
END     BEGIN               ;This indicates the end and the start
                            ;  of the program
```

Giving Your Hyperion The Boot

Every time I boot-up (start) my Hyperion, it automatically copies a few programs from my Master User Diskette into drive C and then checks the DISKNAME in both drives A and B. Often when I am just starting, I forget to put a diskette in B right away. The Hyperion strains for about five seconds before concluding that there is no diskette mounted. Is there any way I can change this?

When you turn on your Hyperion, it starts executing batch file AUTO-EXEC.BAT. Edit this file on your Master User Diskette to remove the DISKNAME command if this annoys you. More information on using batch files is given in your User Guide.

I suggest that you make your own specialized system diskettes, one for your text editor, one for your spread sheet and so on for each different application that you have. This is a fairly simple task. First prepare a new diskette using FORMAT/S and then copy all the files you will be using to it. In general, each system diskette should contain most, if not all, of the .COM files from the Master User Diskette. Experience will show which one you really need. Adding an appropriate AUTOEXEC.BAT is the only other thing required. It should ensure that the file COMMAND.COM is on the default drive (usually C) along with other often-used programs. It could also do such things as TYPEing an introductory message or showing the current MODE settings if desired.

An AUTOEXEC.BAT on a system disk used mainly for IN:SCRIBE could be:

C: (Change the default drive to
COPY A:COMMAND.COM (required since C is set as default drive)
COPY A:EDIT,* (put IN:SCRIBE in C for quick access).

Using your ingenuity, you may customize your diskettes to do just about anything you want.

Getting Bach To Basics

I have been playing my Hyperion using the PLAY command in BASICA. I have just two questions. How do I insert rests into a musical string?

(Neither P nor N0 seem to work.) What is the x sub-command all about?

Unfortunately due to the Hyperion hardware configuration, there is no way to insert pauses directly into PLAY settings.

The X sub-command plays a previously defined string and must be set off using semi-colons. Try the example below, noting the spaces in the strings are only for readability.

```
10 SCALE$="O2 CDEFGAB O3 C"
20 PLAY "T50 ;X SCALE$; T100 ;X SCALE$; T200 ;X SCALE$;"
```

Protecting One's Own

A lot of recent literature mentions the copy protection of software and diskettes. I understand that my LOTUS 1-2-3 is copy protected. What does this mean?

A high quality software package such as LOTUS 1-2-3 costs thousands of dollars and man-hours to produce and has a large market potential. Naturally producers who are entitled to reap the fruits of their labours, would like to see that everyone who uses 1-2-3 pays for it. As a result 1-2-3 has a copy protection scheme built in to prevent anyone from passing out copies to friends. Unfortunately, this also prevents legitimate owners from making back-up copies whenever they want.

Copy protection schemes prevent anyone from making a usable copy of a diskette. Some such schemes are done in software, where certain characteristics of the COPY or DISKCOPY commands interact with the program disk to prevent a good copy from being made. Other schemes may be implemented in hardware so that each program is keyed to run only on a certain machine.

Economic considerations drive the software developer to keep the details of his copy protection scheme secret. Human nature drives other people to do the undoable, such as climbing Mount Everest, accomplishing man-powered flight, and copying copy-protected diskettes. Special copy programs are available commercially. Just who is ahead, the protector or the unprotector, changes rapidly.

A lot of editorial ink has flowed in the past about the pros and cons of copy protection. Obviously, some software producers feel that it is still a good idea despite the fact that the person who grabs a pirated copy of a complicated program without documentation and updates gets what he paid for - nothing. A serious user would pay the full price; the hacker wouldn't have bought it. ✪

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IN:TOUCH *continued*

sign-off procedure.

Receiving Messages

Receiving messages to diskette is as easy as sending them. The principal difference is that you respond to the 'N' MESSAGES PENDING prompt with UNREAD to preview the sender's priorities and determine which messages you may wish to record to diskette. This response lists the reference numbers of these unread messages. If you then enter FILES and DNLOAD, IN:TOUCH will prompt you to give it the drive and filename where you want the incoming mail recorded.

It is usually advisable that you both physically check the diskette in the drive for write protection and DIR/P it to ensure that there is adequate space and that you are not writing on a file that you want to retain. We suggest that you assist yourself by using a date related filename like MAIL1210 (being month and day).

After entering these parameters, you will be back in a manual send mode briefly until you prompt the other end with DISPLAY 2222222. You have now already started recording your transmission and subsequent lines of text received. The MAILBOX system will eventually prompt you with RECEPTION COMPLETE when the message has been received. If you wish to stop recording to diskette, push the STOP softkey and return to the data softkey line. You may then receive or send messages.

As long as you are connected to your printer, you may at any time produce hard copy of messages transmitted or received by depressing the Ctrl and Print* keys simultaneously. We suggest that if you are going to produce hardcopy, the print filter should be set at off. This may be accomplished from DOS by entering th command MODE LPTI:,,TRANS=OFF. The mode may be checked with the MODE SHOW command. We would also generally recommend that you try the default settings for your printer as least likely to cause problems. WE MUST ADVISE YOU STRONGLY TO CHECK WITH NON-CRITICAL DATA as we have no way of knowing what your particular printer needs in control characters to function properly (our Epsons function quite well in this model). After you have exited IN:TOUCH, you may pre-set your printer's normal operating mode by substituting the appropriate print filter filename for OFF in the MODE LPTI: command, e.g. MODE LPTI:,,TRANS=EPSONFX.

In ending, I would ask that you consider these factors:

1. The minimum charge for Canadian Priority Post is about $26. U.S. Express Mail is also expensive.

2. The guaranteed delivery period for courier services and/or Priority Post and Express Mail is 48 hours. If you want to send something Saturday, this effectively extends to 96 hours.

3. Most important business letters are under four pages or under 8000 characters (@ $.75 CAN and U.S. per 1000 characters, MAILBOX would cost $6.00 to send and $6.00 to receive: total $12.00).

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Terance P. Mahoney

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Pearlsoft

Compatible Software

The following is a list of software packages that Bytec has tested and found to be fully compatible with the Hyperion.

We recommend that before buying any package, you subject it to a rigorous test relative to your own particular requirements. Your local Hyperion dealer will show you how to run any of the software below on your Hyperion

Software	Source	Version	
		Product	Operating System
25th Hour 25:01,02,03	Softrend Inc.	1.0	A,B,C
4 Point Graphics	International Microcomp.	PRE	B
8087 Package	Seattle Computer Products	2.22/2.24	A,B
8087 Support	Supersoft		B
ADS Business Software	ADS Software	1.0	B
ADS General Ledger	ADS Software		B
ATI Software Sampler	American Training Intl.	1.0	A,B
ATI Training BPI Accounting	American Training Intl.	1.0	A,B
ATI Training Easywriter II	American Training Intl.		A,B
ATI Training MBASIC	American Training Intl.		A,B
ATI Training Microplan	American Training Intl.		A,B
ATI Training Multiplan	American Training Intl.		A,B
ATI Training PC DOS	American Training Intl.		A,B
ATI Training Supercalc	American Training Intl.		A,B
ATI Training Visicalc	American Training Intl.		A,B
ATI Training Wordstar	American Training Intl.		A,B
ATI Training for Benchmark	American Training Intl.	1.0	A,B
ATI Training for CP/M	American Training Intl.		A,B
ATI Training for dBASE II	American Training Intl.		A,B
ATI Training for Easyfiler	American Training Intl.		A,B
Accounts Payable	CYMA Corporation		A,B
Accounts Payable	IBM-Peachtree		A,B
Accounts Payable	IUS	1.0	A,B
Accounts Payable	MBSI	2.0	A,B
Accounts Payable	Peachtree	2.0	A,B
Accounts Receivable	CYMA Corporation		A,B
Accounts Receivable	IBM-Peachtree		A,B
Accounts Receivable	IUS	2.0	A,B
Accounts Receivable	MBSI	2.0	A,B
Accounts Receivable	Peachtree		A,B
Adventure	IBM-Microsoft	1.0	A,B
Adventure in Serina	IBM-Online	1.0	B
Andromeda Conquest	Avalon Hill Microcomputer		B
Apple Panic	Broderbund	1.0	B
Arithmetic Games I,II	IBM-SRA	1.0	A,B,C
B-1 Nuclear Bomber	Avalon Hill Microcomputer	1.0	B
BASIC Program Development	IBM	1.0	B
Benchmark Mail List	Metasoft	1.2E	A,B
Benchmark Word Processing	Metasoft	3.0J	A,B
Bottom Line Stategist	Ashton-Tate		B
Business Forecasting Model	Visicorp	64 K	A,B
CP-(CPM/86)	Taurus Software Corporation	1.2	B
CP-(DOS)	Taurus Software Corporation	1.2	A,B
CPM/86	IBM-Digital Research	1.0	B
Canadian Payroll	IUS	2.0	A,B
Cantax	Atlantic Research Assoc.		A,B
Cdex Training for Visicalc	Cdex Training Corporation	1.3	B
Cdex Training for Wordstar	Cdex Corporation	1.2	B
Client Strategist	Dynamic Business Software		A,B

Software	Source	Version	
		Product	Operating System
Cobol	IBM-Microsoft	1.0	A,B
Compaq DOS	Compaq Computer Microsoft	1.1 Rev E	B
Computer Chef	Norell Data Systems	1.1	A,B
Computer Football Strategy	Avalon Hill Microcomputer		A,B
Condor 3	Condor Computer Corporation	2.1	A,B
Correspondence Control	Domus Software	1.0	B
Courtney Data Base	Courtney	1.0-R1	B
dBASE II	Ashton-Tate	2.3D	A,B
Data Base Manager, II	Alpha Software	1.0	B
Data Fax	Link Systems	3.0A	B
Data Reporter	Synergistic Software	1.0	A,B
Datakeep	Mathtech Inc.		B
Datasafe	International Microcomp.	PRE	B
Datastar	Micropro International Corp.	1.4	B
Deadline	Infocom Inc.	2.2	A,B
Desktop Plan	Visicorp	1.0	A,B
Easycalc	Norell Data Systems	1.1	A,B
Easyedit	Norell Data Systems	1.0	A,B
Easyfiler	IUS	1.0DOS	A,B
Easyproof	Norell Data Systems	1.2	A,B
Easyspeller	IUS	1.2	A,B
Easytext	Norell Data Systems	1.2	A,B
Easywriter I.I	IBM-IUS	1.1	B
Easywriter II 64K, 96K	IUS	64K, 96K	A,B A,B
Edix	Emerging Technology	1.1	A,B
Electronic Disk	Starware	1.0	B
Electronic Webster	Cornucopia Software	1.1	A,B
Eliza	Norell Data Systems	1.1	A,B
Enchanter	Infocom, Inc.		A,B
F.C.M.	Continental Software		B
Fact Track	IBM-SRA	1.0	A,B,C
Fast Facts	Innovative Software Inc.	1-5	B
Fastgraphs	Innovative Software Inc.	1.01	B
Financial Analysis	Execuware	1.0	A,B
Financial Planning Language	Ashton-Tate		B
Finar	Finar Research	5.1	B
Fortran	IBM-Microsoft	1.0	A,B
Freeform	United Software Company	1.13	A,B
Friday	Ashton-Tate	2.3D	A,B
Galaxy Master	INFO-Pros Inc.	1.0	A,B
General Ledger	CYMA Corporation	1.0	A,B,C
General Ledger	IBM-Peachtree	1.0	A,B,C
General Ledger	MBSI	2.0	A,B
General Ledger	Peachtree		A,B,C
General Ledger & Financial	IUS	1.3	A,B,C
HAI Accounting	Holland Automation		A,B
Hermit's Secret	Norell Data Systems	1.0	A,B
Home Accountant Plus	Continental Software	1.0	A,B,C
Home Budget Program	IBM	1.0	A,B
Homestead Farm Management	Homestead Computer Co.		B
Hypertyper	Digital Marketing		B
IDM-X	Micro Architect Inc.	1.0	A,B
In-Shape	Deg Software	1.0	A,B
Infostar	Micropro International		B
Infotory Management	SSR Corporation	1.0	A,B,C
Installer, The	Starware	1.0	A,B
Inventory	CYMA Corporation		A,B
Inventory Control	IBM-Peachtree	1.0	A,B,C
Inventory Control & Analysis	IUS	1.0	A,B
Landlord, The	Systems Plus	2.04	B
Lattice C Compiler	Lifeboat Associates	MS DOS	A,B
List Manager	Peachtree	2.00	B

Software	Source	Version	
		Product	Operating System
Loan Planner	Generic Transforms	1.0	A,B,C
Macro Assembler	IBM-Microsoft	1.0	A,B
Mailmerge	Micropro International Corp.	3.2	A,B
Math Drills	Starware	2.10	B
Medical Practice Management	CYMA Corporation	1.0	A,B
Memoplan	Softlink		B
Microgantt	Westico Inc.	1.12	B
Micrographs	2Y's Associates Limited	1.0	B
Microplan	Softlink	1.0	B
Midway Campaign	Avalon Hill Microcomputer		A,B
Milestone	Organic Software		A,B
Millionaire	Blue Chip Software	1.0	A,B,C
Money Decisions I, II	Eagle Software Publishing	1.0	A,B
Money Maestro	Innosys Incorporated	1.69	A,B,C
Money Matter	Starware	4.0	A,B,C
Multi State Payroll	CYMA Corporation		A,B
Multimate	Softword Systems Inc.	3.22	B
Multiplan	IBM-Microsoft	1.06	B
Multiplan (Generic)	Microsoft	1.06	B
Multiple Regression	Starware	1.0	A,B
Multitool Budget	Microsoft	1.0	B
Multitool Financial Statement	Microsoft	1.0	B
Munchkin	Norell Data Systems	1.0	A,B,C
NPL	Desktop Software		B,C
Norton Utilities	Peter Norton Inc.	1.0	B
Order Entry and Invoice	IUS	2.0	A,B
Original Adventure	Norell Data Systems	1.0	A,B
P Edit	Satellite Software Intl.		2.20
PC Crayon	PC Software		B
PC File	Texasoft Inc.	1.0	B
PC Tutor	PC Solutions	P	B
PC-DOS	IBM-Microsoft	1.1	B
PC-Tutor	Comprehensive Software	1.0	A,B
PC/FAS	Best Programs		B
PDS Financial Systems	Prairie Data Systems	1.0	A,B
PFMS	Personal Equity Computing	1.0	A,B
PFS File	Software Publishing		A,B
PFS Graph, Report, Write	Software Publishing	1.0	B, A,B,C A,B
Pack & Crypt	Norell Data Systems		A,B
Pascal	IBM-Microsoft	1.0	A,B
Payroll	MBSI	2.0	A,B
Peachcalc	Peachtree	1.01	B
Peachtext	IBM-Peachtree	2.02	B
Peachtext 5000	Peachtree	2.02	B
Perfect Calc	Perfect Software Inc.	1.0	A,B
Perfect Filer, Speller, Writer	Perfect Software Inc.	1.0	A,B
Perfin	Digital Engineering Group	1.3C	A,B
Personal Editor	IBM	1.0	B
Personal Pearl	Pearlsoft	1.0	B
Pertmaster	Westminster Software	4.52	B
Phantom's Revenge	Norell Data Systems	1.0	A,B
Poker	Avalon Hill Microcomputer		A,B
Power	Computing!	P	B
Power Planner	Starware	1.02	B
Print It	Indigo Data Systems Inc.	1.0	A,B
Project Scheduler	Scitor Corporation	1.0	A,B
Prokey	Rosesoft	2.13	B
Proofwriter	Image Processing Systems	1.0	A,B
Question	Alpha Software	1.0	A,B
Quotrix	Insoft Inc.		B
Random House Proofreader	Aspen Software	1.10	A,B
Ratfor	Supersoft		B

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Software	Source	Version	
		Product	Operating System
Real Estate Analyzer	Howardsoft	3.00	B
Real Estate Investment	Datamost	4.0	A,B,C
Report Star	Micropro International Corp.	1.0	B
ResQ	Key Software Inc.	1.1	B
SSI Forth	Satellite Software Intl.		B
SSI Legal	Satellite Software Intl.	1.0	A,B
SSS Fortran	Supersoft	1.0	B
Scratchpad	Supersoft	3.2	A,B
Select Word Processing	Select Information Systems	1.0	A,B
Sideways	Funk Software	1.01	A,B,C
Silver Budget	Silver Soft	1.0	A,B
Small Business System	CYMA Corporation		A,B
Space Strike	Datamost	1.0	B
Spellbinder	Lexisoft Inc.	5.12	A,B
Spelling Proofreader	Peachtree	2.01	B
Spellstar	Micropro International Corp.	1.2	A,B
Starcross	Micropro International Corp.	1.2	A,B
Statpack	Northeast Analytical Inc.	2.1	A,B
Stellar Raiders	Easyware System Builders	1.01	A,B
Supercalc II	Sorcim		B
Survey System, The	Creative Research Systems	1.0	B
T/Maker III	Tmaker Co.	1.0	A,B
TCS Simple	TCS Software		A,B
TCS Total Ledger	TCS Software		A,B
TCS Total Receivables	TCS Software		A,B
Tim III	Innovative Software Inc.	3.30	B
TK!Solver	Software Arts	IE	B
Tax Decisions	Eagle Software Publishing	1.0	A,B
Tax Preparer	Howardsoft	1983 ed.	B
Treasure Hunt	Ensign Software	1.0	B
Type Faces	Alpha Software	1.0	A,B
Typing Tutor	IBM-SRA	1.0	A,B
UCSD Fortran	IBM-NCI		A,B
UCSD P System	IBM-NCI	B4	B
UCSD P System Runtime	IBM--NCI		B
UCSD Pascal	IBM-NCI		A,B
Ultimate, The	Computer Creations	1.0	B
Video Graph 88	Windmill Software	1.0	B
Video Treck 88	Windmill Software		B
Visicalc	Visicorp	VC-177Y2-IBM	A,B,C
Visicalc IV	Visicorp		A,B,C
Visidex	Visicorp	1.0	A,B
Visifile	Visicorp	2.0	A,B,C
Volkswriter	Lifetree	1.1,1.2	A,B
Vo!kswriter International	Lifetree	1.3	A,B
Word Perfect	Satellite Software Intl.	2.20	B
Word Plus	Oasis	-	A,B
Word Wand	Tanda Software Inc.	Hyperion	A,B
Wordix	Emerging Technology	1,2,3	A,B
Wordmate	Software Systems Inc.	2.0	A,B
Wordplus PC	Professional Software Inc.	1.0	B
Wordstar	Micropro International Corp.	3.2,3.3	A,B
Wordstar Professional	Micropro International Corp.	3.3	A,B
Wordtrix	Insoft Inc.		
Zork I,II,III	Infocom Inc.	26,19,12	A,B

Notes:

A Requires a system which runs MS-DOS 1.25H with IO.SYS 1.01H or lower

B Requires a system which runs MS-DOS 1.25H with IO.SYS 1.02C or above

C See the Hyperion Application Note for specific startup procedures

Because a particular software package is not on the list does not mean necessarily that it is not compatible with the Hyperion. If you want to know whether a particular piece of software is compatible with the Hyperion, contact your nearest authorized Hyperion dealer who can get the necessary information directly from Bytec.

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